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THE CONNECTED ENTERPRISE

February 22, 2010

VOLUME 27 NUMBER 4 \$5.00

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We tested more than 100 products in 2009, but 15 stood head and shoulders above the rest and win our Best of the Tests award. **Page 24** ▶

Rapid pace of change a major challenge for mobile industry

Parade of new devices and services highlight industry gathering in Spain

BY JOHN COX

THE MOBILE device and infrastructure industries continued their familiar yet increasingly complex dance at last week's Mobile World Congress in Barcelona: Consumers and enterprises receive ever more options to choose from, while carriers scramble to figure out how to support, deploy and make money off the mix.

At the intersection of soaring mobile Internet traffic, enabled by ever more sophisticated client devices, and of rising infrastructure investments, in both enhanced 3G and powerful 4G networks, is an industry-wide experiment to create new services along with new revenue models.

"Right now, the service landscape [from which] mobile operators actually are gaining revenue in mobile data is very thin, with most of the revenues coming from data service subscriptions that are flat fees," says Bettina Tratz-Ryan, a research

▶ See **MWC**, page 15

More students find computer science a key to better pay

BY CAROLYN DUFFY MARSAN

HERE'S A tip for incoming and current college students: If you want to have a high-paying job on graduation day, study computer science.

That's the advice coming out of the top U.S. computer science programs. After some down years, some are seeing rising enrollment and applications as more college students discover that their job prospects are better — and their starting salaries higher — if they have a computer-related degree.

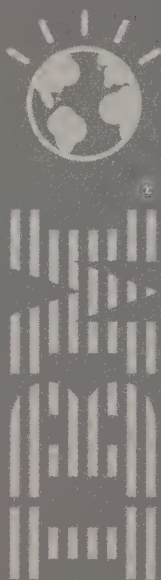
▶ See **Jobs**, page 18

Power your planet.

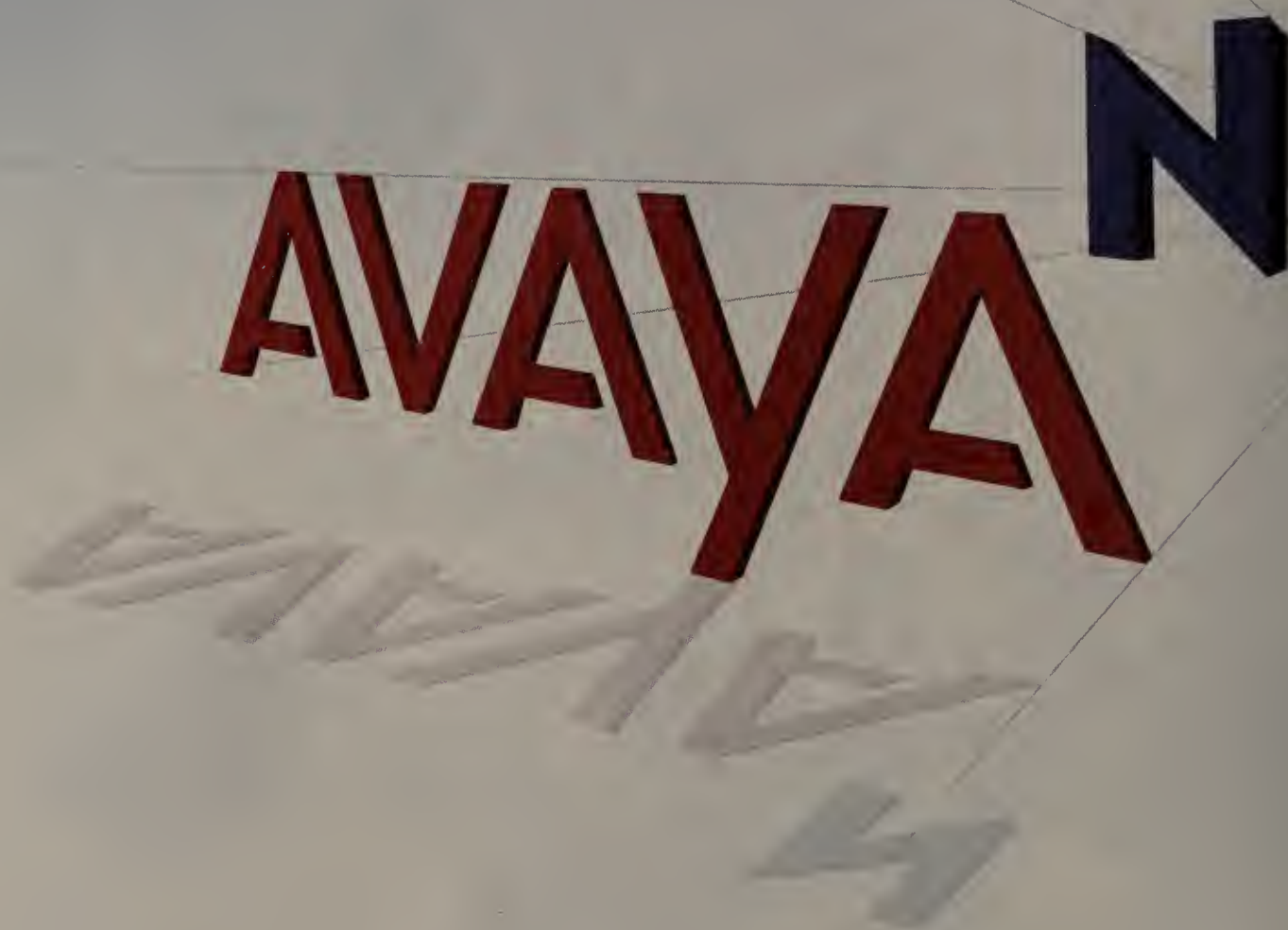
We live on a planet where data is exploding at an annual compound rate of 57%, where nearly 6 terabytes of information are being exchanged over the Internet every second, and where billions of connected people are surpassed in number, only by trillions of connected objects and devices. Why then is the average server in the average business running at only 10% utilization? It's hard enough for businesses to meet the demands of a smarter planet today, much less the unforeseen demands of tomorrow.

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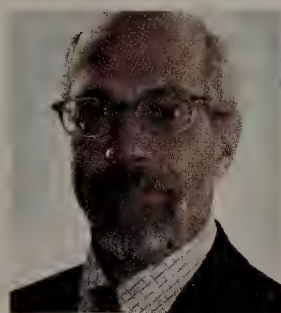
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FROM THE EDITOR | JOHN DIX

Google's 1G trial a welcome telco prod

What changes when bandwidth is virtually unlimited? That's what Google is hoping to find out with its recently announced plans to deliver 1Gbps to up to 500,000 homes in an ultra-high speed Fiber to the Home experiment.



The company's stated goal is to showcase what is possible, apparently giving up on a suggestion that the FCC set up an industry test bed for this kind of stuff.

Not that the FCC doubts the promise of high-speed broadband. Just last week FCC Chairman Julius Genachowski revealed the "100 Squared" initiative, a plan (short on particulars) that calls for the United States to deliver 100Mbps Internet service to 100 million households.

As many observers have pointed out, the FCC is likely to reach this goal because almost half of the country's 120 million cable subscribers are served by DOCSIS 3.0 systems that can support 100Mbps, and Verizon's FTTH FiOS service — which can support 100Mbps and more — already passes more than 15 million premises. We're likely to get to 100 Squared in the next few years with or without FCC goading.

In fact, while many people decry the United States' broadband stature, we're actually much further along than conventional wisdom would suggest. Broadband is available to more than 90% of U.S. households and 65% of all households subscribe, according to statistics Verizon collects. And while the penetration rate might be higher in small countries, the United States has tens of millions more broadband subscribers than any single country.

But we have to keep moving forward, and Google is right to use its considerable clout and wealth (\$6.5 billion in profits, half that of AT&T, which is five times larger) to push us to get better. Google says it will build a symmetrical gigabit service and provide open access to other service providers, both markedly different approaches compared to the status quo.

While it isn't exactly clear what 1Gbps FTTH would change, chances are it will change something. New streaming entertainment options and real-time video communications are candidates, one would presume, and what of new cloud services? At that speed, cloud computing could more than equal experiences delivered by on-premise equipment. Would it be hard to convince people that a \$10 per month service is better than buying, configuring, securing and updating your own PC?

Remember, however, that this experiment is only about access. Slower wireless home LANs, say nothing of bottlenecks in the Internet cloud, would preclude a true end-to-end gigabit experience. But you have to start somewhere.

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Hiring managers set expectations too high

➔ **ONCE AGAIN HIRING** managers and companies are expecting way too much from an individual. (Re: The deepening data center skills crisis; tinyurl.com/yfte5bq.) To expect someone that is highly technical across all the areas mentioned and also have the ability to interact with the business units is not anywhere close to being grounded in reality. These skills found in an individual might have been more applicable when you had a department or small office server and someone in that department/office needed to know these skills to manage that small operation, but this will not scale to a larger data center operation.

An individual possessing these same skills would end up spinning their wheels if you dropped them into a large data center. Large data centers are responsible for running the equipment and applications of the company, or possibly a large division of a company. These utilize tools to ensure that servers are balanced as to the resources they need and there is a staff of people that actually accomplish these tasks. There are separate business analysts that work with the business units and they communicate to the manager or staff of the data center when new things are expected by the business units. No where did the people who were looking for help talk about their responsibility to train their people, they simply want to go to the "store" and buy what they need and get cranky when the "product" — people — they want is not available, and probably doesn't exist except in their minds. Data centers require staff not simply an individual that can do all these things. How about hiring enough staff and plan on training them or letting them get up to speed on the technology? I've heard the reaction before, "but if I train them they'll leave and go somewhere else". True but then you're not doing your job as a manager to keep them loyal to you through reasonable pay, a challenging

work environment and the chance to learn new things. The attitude about disposing of good people, simply because they don't possess the latest skills, is something we've got to stop now.

Roger Rowan

Can generalists see the bigger picture?

➔ **READING THE ADVERTISEMENTS** for "generalists", most actually seek individuals with multiple specialties but offer compensation for only one of those specialties. (Re: Wanted for hire: generalists, not IT specialists; tinyurl.com/yz7vyay.) And one has to wonder how much training these companies will support (read "pay for") to help employees maintain their competency in each specialty.

In the last 10 years, with the waves of outsourcing and downsizing, many who actually were generalists were released with companies relying on their outsourcer or short-term consulting to provide leadership in the deployment and utilization of technologies supporting their business. Now those chickens have come home to roost. But what is missing in the generalist equation is one who can help a company take maximum advantage of today's technologies, simultaneously look ahead to the next generation of technology, and perhaps most important, identify those technologies that can create new business opportunities for the enterprise.

John Kies

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Demand drives broadband

➔ **ACCORDING TO "U.S. broadband adoption sees significant spike"**

(tinyurl.com/yfd8w7p), a study has found that the major impediment to increased broadband adoption in the U.S. is a lack of demand from non-broadband users.

Why is the government spending any money on broadband adoption let alone doing a study? Those who want broadband, have it, except 11% in rural areas where it's unavailable. There is always satellite Internet they can consider.

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Smarter technology for a Smarter Planet:

Building a fluid enterprise.

To date, companies have spent billions of dollars building automated systems to manage vertical business functions—ERP, CRM, etc. Unfortunately, these systems were never designed to talk to each other. Today, the average employee wastes 5.3 hours per week working within these siloed and inefficient processes. IBM's comprehensive business process management solutions connect your disparate processes, enabling fluid workflows. IBM has given over 5,000 companies the visibility and automated processes they need to respond to changing demands and work smarter, from a freight company that reduced development costs by 30% to an oil producer now measuring their fields in real time, doubling the industry's average recovery rates.

A smarter business needs smarter software, systems and services.
Let's build a smarter planet. ibm.com/flexible



Does virtualization make security harder?

DEPENDS WHO YOU ask — security pros don't see eye to eye when discussing the security implications of virtualization and cloud computing. One-third of those polled by Applied Research believe both techs make security harder, while another third said "more or less the same" and the last group said "easier" (our guess is this last contingent hasn't had much experience with mobile virtual machines). One thing the respondents can agree on? The threat of cyberattacks. Roughly 75% of respondents said their organization had experienced cyberattacks in the past 12 months, with 36% saying the attacks were "somewhat/highly effective." The annual cost of cyberattacks was pegged at more than \$2 million for a large enterprise when tallying lost productivity, theft of intellectual property, loss of customers, legal fees and more. Yeeoww! tinyurl.com/yj2nsjp

Microsoft puts some Outlook output on a diet

MICROSOFT IS trying to fix a bug in the Outlook 2010 Beta that pads out certain types of e-mail, resulting in unusually large files. The bug appears where numbered and bullet-point lists are used, and causes redundant cascading style sheet definitions to be included in each outgoing message. The product team has offered a patch for both 32- and 64-bit systems that fixes the problem, although existing e-mails will remain supersized. Restarting Outlook after downloading the patch removes all the extra CSS, Microsoft says. To get rid of those older monster e-mails, the Outlook team suggests running

Conversation Cleanup, a new feature of Outlook 2010 that deletes older, redundant messages ... and humongous ones. tinyurl.com/ykmtkw9

What a difference a quarter makes

THEY'RE DANCING in the HP boardroom. HP's first-quarter profit increased 28% to \$2.3 billion compared to the same quarter last year. Revenue increased 8% to \$31.2 billion. The company's printer, server and PC businesses all reported sales growth — a turnaround from last quarter, which saw sales decline in almost every main segment. (The one step backwards last quarter: Sales in the giant services segment decreased by 1% to \$8.7 billion.)

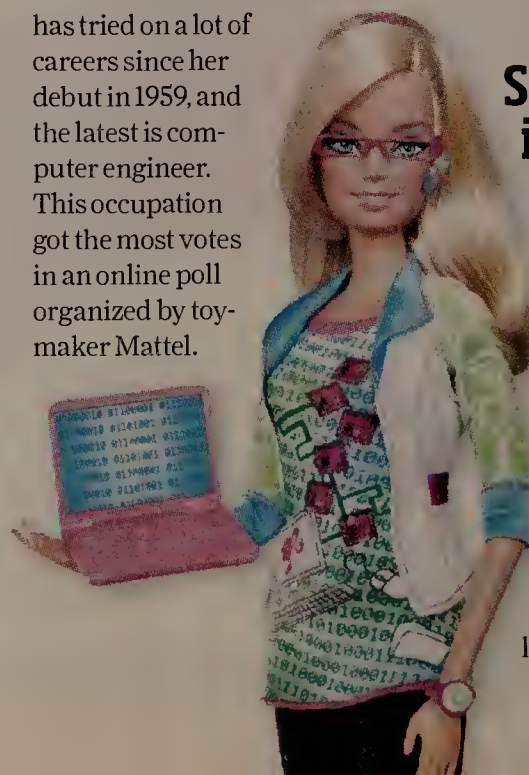
The results are another sign that parts of the tech industry are emerging from the recession. Last month IBM reported its first quarterly revenue increase in more than a year, and said profits were up 10% from a year earlier. tinyurl.com/yjw9yrs

Not the Buzz Google was counting on

SECURITY EXPERTS last week warned about a common Web programming error that could give hackers a way to take over new Google Buzz accounts. The cross-site scripting flaw lets an attacker put his own scripting code into Web pages that belong to trusted Web sites such as Google.com. The attacker "can force you to say things you don't want to say, to follow people," said Robert Hansen, CEO of SecTheory, who first reported the issue. "Whatever Google Buzz allows you to do, it allows him to do to you." tinyurl.com/ygbj2x4

Barbie gets geeky

IS THAT binary code on Barbie's tunic? The iconic doll has tried on a lot of careers since her debut in 1959, and the latest is computer engineer. This occupation got the most votes in an online poll organized by toy-maker Mattel.



Shining a light into hazy clouds

IBM LAST week acquired network change and configuration management vendor Intelliden, saying the company's tech will make it possible to track changes made to network devices supporting cloud computing environments and ensure the changes don't set off a ripple of problems. tinyurl.com/yjbwpq3

TRUE FACT

37%

The percent of new IT spending currently allocated to projects that directly contribute to increasing top line revenue.

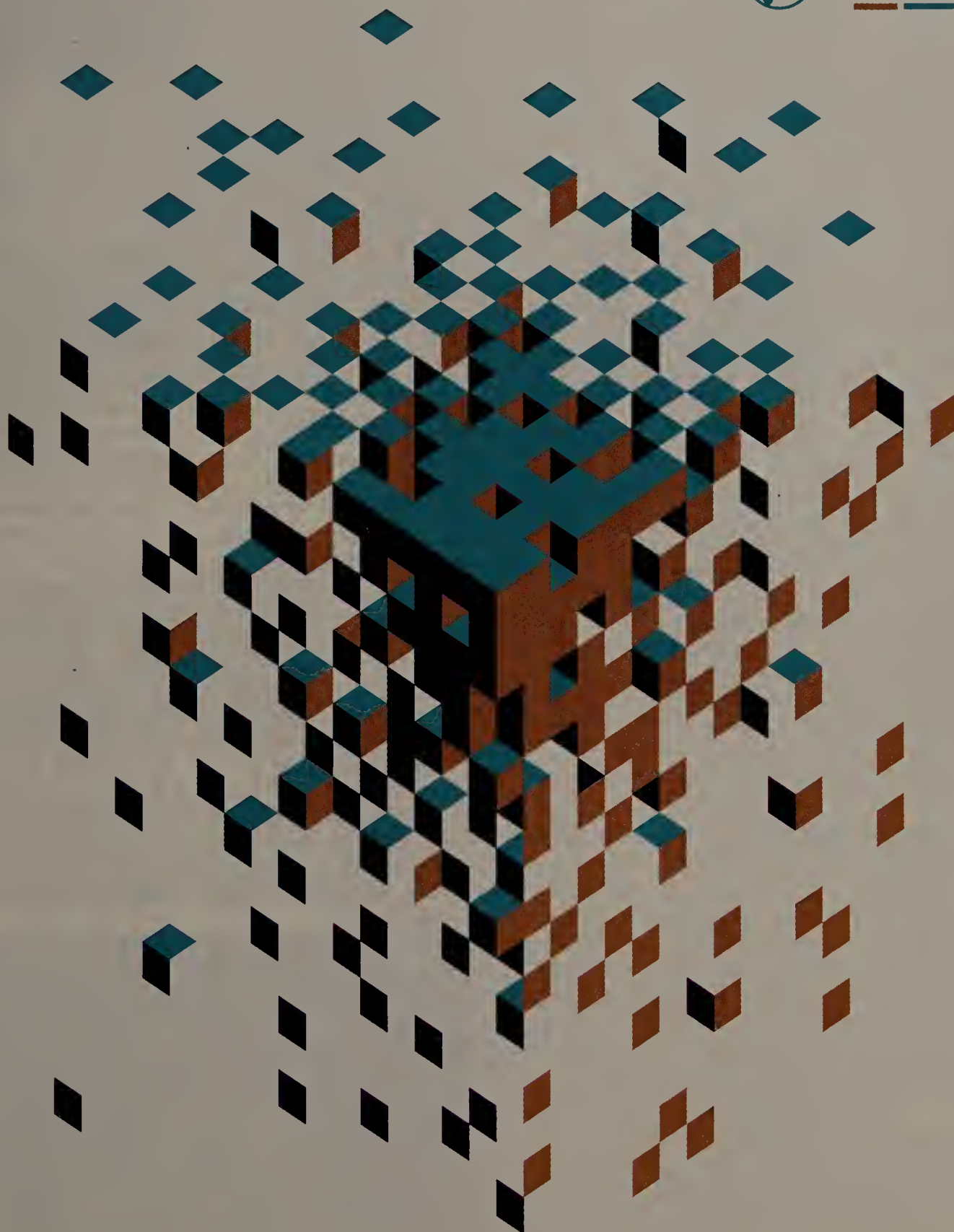
SOURCE: CIO MAGAZINE'S IT ECONOMIC IMPACT SURVEY OF 367 HEADS OF IT

Smarter technology for a Smarter Planet:

Service in the age of smart assets.

Smart assets are making it possible to spread intelligence into everything from power lines to railroad lines to assembly lines. The challenge is: how do you choreograph the physical and the digital to provide the quality services your customers expect and the flexibility your business needs? IBM's approach to service management can help you extend visibility, control and automation through all of your company's services so you can easily modify existing services or quickly add new ones, laying the groundwork for a more dynamic infrastructure. We're helping companies all over the world—20 of the 20 top telcos and 7 of the 10 largest automotive manufacturers—reach beyond the datacenter to deliver flexible services in a smarter way.

A smarter business needs smarter software, systems and services.
Let's build a smarter planet. ibm.com/svcmgmt



GOOD BAD UGLY

Freebie from RIM

RESEARCH IN MOTION will soon be releasing a free version of its one of its most prized possessions, the server that synchs the BlackBerry with Microsoft Exchange. The news gets even better: BlackBerry Enterprise Server Express can support as many as 2,000 users. It is expected to be available in March. Of course, the free version doesn't include all of the bells and whistles of the full version. But it will offer a pretty good subset of features, RIM says, including about 35 IT controls and policies such as the ability to remotely wipe a smartphone and enforce and reset passwords.

good

Internet domain holders a mystery

MORE THAN three-quarters of Internet domain registrants have incomplete, invalid or false names. And 22% of Web site owners proved to be impossible to trace. That's according to a survey conducted by the University of Chicago on behalf of Internet registry agency ICANN, which looked at how accurate the results were for people who used the WHOIS connection to try to trace domain name holders. "Finding solutions for this seemingly simple problem has been a challenge for the ICANN community that has gone on for years. Inevitably, possible solutions are judged by intellectual property interests, law enforcement, privacy experts, those who use non-Latin scripts and others, with different goals for approaches and definitions of success," according to Doug Brent, ICANN's CEO. (Content via *TechWorld*)

bad

Malicious code nails City of Norfolk

MALICIOUS CODE that mysteriously found its way onto an internal virtual print server took out nearly 800 computers used by the city of Norfolk, Virginia, in early February. The code apparently was activated when workers shut down their computers, said Hap Cluff, IT director for the city of Norfolk. "It was triggered by the action of logging off," he said. The code nearly wiped out the C drives of the 784 affected computers and essentially deleted the Windows operating system. The contents of the system folders on those machines, normally about 1.5GB in size, shrunk to 500MB, he said. Cluff believes the code may have been a "time bomb," possibly loaded a long time ago.

ugly

Facebook shouts Yahoo on way by

FACEBOOK JUST passed Yahoo to become the second most popular Web site in the United States. Yahoo lost the No. 1 spot to Google in February 2008, and now sits in third place, according to Web analytics research by Compete. Facebook drew 134 million unique visitors in January, while Yahoo pulled in 132 million visitors. Google led the way with 148 million visitors, or nearly half the U.S. population. Facebook, however, is king of the Web when it comes to the amount of time people waste ... er, spend online. During January, 11.6% of all time spent online was on Facebook, compared to 4.25% for Yahoo and 4.1% for Google, Compete says.

tinyurl.com/ygahdj9

Drink up the glory, Larry

LARRY ELLISON has had a good 2010, and we're only two months in. The billionaire founder of Oracle wrapped up the monster acquisition of Sun, and a few weeks later Ellison's BMW Oracle Racing team beat out the Swiss Alinghi team to take home the America's Cup, the oldest trophy in international sports. Ellison not only financed the quest but was on the high-tech boat for the race, in which a U.S. team won the trophy for the first time in 18 years. (Of course, his boat had

a 20-story high wing instead of a sail, but let's not get picky.)
tinyurl.com/yfrrgfg

Swiss cheese "security" products

CISCO LAST week warned customers of multiple holes in its security product and released patches for all of them. Affected products include the Cisco Firewall Services Module for the Cisco Catalyst 6500 switches and Cisco 7600 routers, Cisco ASA 5500 security appliance and Cisco Security Agent releases 5.1, 5.2 and 6.0 and the Cisco PIX 500. The FWSM vulnerability may cause a denial-of-service attack, and the Cisco FWSM may be forced to reload after processing an evil Skinny Client Control Protocol message. Cisco warns that the ASA appliance is plagued with several vulnerabilities.
tinyurl.com/yhz2yjr



IT Video

TRAKR RC car lets kids' apps be a spy

The Spy Video TRAKR from Wild Planet wirelessly transmits video back to its controller and allows kids to write their own apps to control the device.
tinyurl.com/yatutnb



[TOUGH QUESTION #3]

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PROTECTION AT THE SPEED OF BUSINESS

Botnet revelation shows malware underbelly

Kneber reveals a complex fault-tolerance mechanism using multiple bots

BY TIM GREENE

INFORMATION GATHERED about a newly discovered botnet called Kneber indicates that multiple infections by different malware on the same host could work together as a sophisticated mechanism to give all the malware a better survival rate.

The sheer size of the Kneber botnet — 74,000 compromised computers in 2,400 different companies — attracted most of the attention when Kneber was revealed last week. But how it interacts with other malware networks suggests a symbiotic relationship that ultimately makes each botnet more resistant to being dismantled, says Alex Cox, the senior consultant in the research department at NetWitness who discovered Kneber.

Kneber was built using a well-established toolkit for aggregating botnets called Zeus that has been around for years. Kneber is an example of just one botnet built with the toolkit, but because Cox captured 75GB of log data from the command-and-control server, he was able to examine detailed characteristics of the computers Zeus took over.

What he found is that more than half the 74,000 compromised computers — bots — within Kneber were also found infected with other malware that uses a different command-and-control structure. If one of the criminal networks were disabled, the other could be used to build it up again.

“At the very least, two separate botnet families with different [command-and-control] infrastructures can provide fault tolerance and recoverability in the event that one [command-and-control] mechanism is taken down by security efforts,” he says.

In this case, more than half the machines that made up the botnet were infected with both Zeus, which steals user data, and Waledac, a spamming malware that uses peer-to-peer mechanisms to spread more infections, he says. He can’t conclude for sure that they’re working together in this case, but the presence of both introduces an interesting possibility: If the Zeus command-and-control infrastructure is cut down, the owner of the Zeus botnet could go to the person running the Waledac botnet and pay for it to push a Zeus upgrade that brings the Zeus bots back online reporting to a new server, he says.

Alternatively, a single group could run both the Zeus and Waledac botnets and push the upgrade itself.

What damage can Kneber do?

NetWitness tapped into a command-and-control server for a Zeus botnet it has named Kneber. Here are highlights of what is known about this botnet.

It is stealing usernames and passwords.

It uses the Zeus Trojan to initially infect machines — 74,000 so far.

It infects machines with more malware.

It is about 9 months old.

Despite being tapped into, it’s still active.

The Kneber server log contained individuals’ passwords to sites including Facebook and Yahoo. It was also designed to target individuals’ passwords for a slew of financial sites including CitiBank, Wells Fargo, PayPal, Citizens Bank and HSBC Bank, Cox reports. He discovered Kneber Jan. 26 while working at a NetWitness customer site. He found a machine infected with Zeus that was downloading other malware executables. He traced the traffic back to a Zeus command-and-control server in Germany, where he was able to grab a month’s worth of the server’s log data.

The botnet got its name from hilarykneber@yahoo.com, the registrant listed for the original domain used to pull together various components of the botnet. That same registrant has been associated with seeking other malware including PDF and Flash exploits as well as Trojan installs.

The same registrant is also listed on multiple Web sites seeking money mules — people who accept illegal transfers of money into their bank accounts and forward them to other bank accounts in an effort to make the funds unrecoverable by the actual owners.

Kneber has been active since March 25, 2009, and most of the sites associated with its activities are in China, according to their underlying IP addresses, NetWitness says. About 17% of these sites are in the U.S.

Cox also links Kneber to a phishing attack against U.S. government agencies that sends

e-mails apparently from the National Security Agency that urges recipients to click on links that download the malware.

Kneber’s significance involves the harvesting of social networking usernames and passwords. These can be used to get into social networking accounts where they can post links to infected sites. Social network friends are more likely to trust these links.

Social network accounts can also be mined for personal data that can be useful in further compromising individuals’ financial accounts. For example, if social networking accounts yield mothers’ maiden names, they might be used to reset passwords of bank accounts, giving attackers a way to get in and transfer money out.

While many experts commended NetWitness for uncovering this instance Kneber botnet, they noted there are more Kneber-like botnets out there. And because this Kneber instance uses the older version of Zeus, it doesn’t even represent the worst it could do.

What NetWitness uncovered in Kneber with 75GB of information on 75,000 compromised machines over 90 days “is above the median size of a data cache,” says Don Jackson, security researcher at SecureWorks, noting most botnet caches his firm’s uncovered tend to run 10GB of data for about 23,000 compromised user computers.

But Kneber is based on the older 1.2 version of Zeus now given away for free and is not usually considered what would be used by a “professional high-dollar operator” who would make a lot of effort to hide behind proxies. “If you wanted to go hunting for these things, you could find them every month,” he noted.

The most recent version of Zeus, version 1.3, which was first seen in November of last year, costs thousands, with even a single module costing \$10,000 in criminal circles, according to SecureWorks. The new version of Zeus is so deadly, it rips through unauthorized online wire transfers once it gets hold in an infected machine — and more.

Anyone investing in Zeus 1.3 is likely to take a lot of trouble to successfully hide the botnet, Jackson notes.

McAfee said, “In cybersecurity, ‘Kneber’ is, unfortunately, just another botnet. With 75,000 infected machines, Kneber is not even that big, there are much bigger botnets.” ■

Senior Editor Ellen Messmer contributed to this article.

Smarter technology for a Smarter Planet:

Thinking outside the box depends on what's in the box.

The systemic inefficiencies in many server rooms today, in terms of both energy consumption and utilization, are becoming unsustainable. A recent study found that an estimated half of all businesses experience IT outages due to power and cooling issues¹. Smarter tools like the IBM BladeCenter® HS22 can help. It's designed to give you greater efficiency at every level, from its highly efficient design and Intel® Xeon® Processor 5500 Series to its advanced management software like IBM Systems Director that actively monitors and limits power consumption. All of which can add up to 93% in energy savings over the previous generation of rack servers. Learn how you can see a return on your investment in as little as three months² at ibm.com/hs22

Systems, software and services for a smarter planet.



Source: IDC Market Analysis #215870, Volume 1, December 2008, Worldwide Server Energy Expense 2008–2012 Forecast. ²Return on investment and power savings calculation based on 11:1 consolidation ratio scenario of 166 Intel 1U 2 socket servers to 14 BladeCenter HS22 servers and savings in energy costs, software license fees and other operating costs. Actual costs and savings will vary depending on individual customer configurations and environment. For more information, visit www.ibm.com/smarterplanet/claims. IBM, the IBM logo, ibm.com, BladeCenter, Smarter Planet and the planet icon are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at www.ibm.com/legal/copytrade.shtml. Intel, the Intel logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the United States and other countries. © International Business Machines Corporation 2009. All rights reserved.

Active Directory looks to next challenge

After 10 years, Microsoft eyes new frontiers for directory technology

BY JOHN FONTANA

TEN YEARS ago, Microsoft released its Active Directory technology to skepticism that it could build an infrastructure technology to anchor user management and access control. Now the software is an integral part of nearly every corporate network and stands ready for its next frontier: public and private clouds.

Over the years, Active Directory has strengthened its shaky legs by improving scalability and flexibility, and adding features such as federation and rights management services. The directory today is part of nearly every task a user performs on a Windows-based network, plus there are tools to include Unix and Linux machines under the access controls in Active Directory, and an army of third-party vendors.

Most recently, Microsoft unveiled plans for the Next Generation Active Directory (NGAD), a modular add-on that is built on a database and designed to add querying capabilities and performance never before possible in a directory. NGAD also is a reshaping of the programming model for Active Directory.

But it all started on Feb. 17, 2000, with the official release of Windows 2000, which featured Microsoft's first ever network directory.

Directory technology had already been mastered by Novell and Banyan, along with others such as Sun. Still, Microsoft charged out of the gate with the intent of taking the industry by storm. And it succeeded. Today, Active Directory runs in more than 90% of the world's 2,000 biggest companies, while the rest of the market picks up the leftovers.

Active Directory is an integral part of Exchange, SharePoint and Office Communications Server, along with other Microsoft and third-party applications.

"Besides core file serving functions, Active Directory is the most deployed workload in Windows Server," says Justin Graham, senior product manager for Windows. "And I would venture to say one of the most strategic workloads."

Over the years Microsoft has added to Active Directory what the user base demanded, Graham says. While Active Directory presented challenges, "we have accomplished a lot," he says. "We have watched the industry and anticipated the shifts, and that will continue going forward."

As with any nascent technology, there were growing pains, stumbling blocks and

Microsoft's directory service twist

Microsoft is building a directory service based on a database and designed to add querying capabilities and performance not previously available in a directory. The company has unveiled two key elements of its forthcoming Next Generation Active Directory, a schema and an API.

System.Identity schema: A flexible modeling approach to directory schema, which describes the structure of the information.

System.Identity API: .Net API exposes data to developer via LINQ.

techniques to master on the rise upward. The directory slowed the uptake of Microsoft Exchange 2000, the very first Active Directory-enabled application, as users fretted over directory architectures, schema changes and configurations, for instance.

Even Microsoft's IT department alerted users to take caution in building directory infrastructure.

In a February 2000 interview with *Network World*, Dave Gasiewicz, the lead architect for Microsoft's internal IT department, said "if you want to live in hell right away, go to multiple forests." The multiple forests architecture presented an administrative "boondoggle" and a very complex security model, Gasiewicz said. His frankness was appreciated more by users than Microsoft's PR machine, but it was an indication that users were dealing with serious infrastructure technology.

"Microsoft did learn the hard way, which is almost an inevitable process for that level of infrastructure," says Jamie Lewis, CEO of the Burton Group/Gartner. "It is not easy to build and it takes time for something as ambitious and complex as a directory."

But Lewis says there is no question that Active Directory today is considered by a lot of companies to be the foundation of their user repository and hub for their internal authentication mechanism.

Hopefully, Microsoft learned its lessons well, because Lewis says moving the directory to the cloud will be another hard lesson, especially given that Active Directory is now a piece of legacy technology that many users don't want disturbed. That is one reason Microsoft is developing NGAD as an add-on.

"I don't want to do anything to let anybody think that I am going to diddle with Active Directory infrastructure, yet I want to leverage the infrastructure," Kim Cameron,

Microsoft's directory architect, told *Network World* at the software giant's Professional Developers Conference in November.

"The question is how do you maintain that legacy and at the same time innovate in the new context and the move toward public and private cloud services," Lewis says. "The cloud infrastructure is a completely different architecture, a massively different set of scaling problems and an order of magnitude difference in security concerns. It is hard enough to solve these problems if you start with a clean sheet of paper, it is another to solve them and maintain a legacy."

Lewis says the question is whether Microsoft breaks the past to create the future, or hobbles the future to create a migration path. "These are the challenges Microsoft faces with many of its products, and [Active Directory] is no different," he says.

Enterprise IT pros will be watching to see how Microsoft handles these evolutionary challenges.

One user who requested anonymity notes that despite NGAD's introduction, there are precious few details surrounding Active Directory for the cloud. In addition, he says, there have been few appreciable changes in 10 years. "People still are afraid to change the schema." Also, the Active Directory Lightweight Directory Service (formerly called ADAM), which is mostly an Internet focused directory, isn't on par with Active Directory in terms of management tools, making it in essence a separate deployment.

The user also says Active Directory is without doubt the dominant directory in use worldwide. "Find an enterprise that is not using it," he says.

A decade ago that would have been a snap, but today that has changed and the original skeptics have been proven wrong. ■

► **MWC, from page 1**

vice president with Gartner Deutschland. "So, in order to justify the LTE deployments, which need more cells than in a 3G network to build out to higher bandwidths, mobile operators need to build out services with greater customer experiences. Those can be defined, for instance, in terms of quality, flexibility, and blended with social media for consumers or with unified communications for business users."

Windows Phone rises?

On the device side, the biggest story out of MWC was Microsoft's radically redesigned Windows Phone 7 mobile operating system. The demonstration was only that — showing the new user interface — but it deftly blends typography and minimalist icon design in an easily navigable arrangement: applications, content and information clustered in "hubs" that have common organization.

Microsoft deflected all questions about the kernel, new developer tools, Silverlight support, what kind of browser it has or anything else deemed to be part of the "platform."

Nonetheless, the user interface impressed observers. "[T]his was the radical change for which consumers have been waiting in order to reengage with Microsoft," writes Avi Greengart, an analyst with Current Analysis. "Windows Phone 7 series is competitive across the board — for entertainment, enterprise use, and personal productivity."

Microsoft didn't directly address changes or improvements aimed at enterprise users. But the demonstration showed the "Office Hub" for the Microsoft Office Suite, including the OneNote note-writing application, and important access to SharePoint, Microsoft's enterprise collaboration, workflow and document management system.

But there's still skepticism about whether the operating system can catch up to Apple, Research in Motion, and, increasingly, Android. Veteran Microsoft watcher Joe Wilcox wrote in a post that Windows Phone 7 was "dead on arrival." Microsoft has lost too much market share and mindshare, and faces too much successful competition from Apple and Google Android to resuscitate its mobile offering, he argues.

Both ZTE Corporation and High Tech Computer (HTC) unveiled lower-cost smartphones, making use of Qualcomm's silicon and its recently introduced Brew Mobile Platform (Brew MP) operating system, which incorporates its Brew application framework. Among other things, it supports Adobe Flash. Both companies continue to roll out Windows Mobile and Android phones.

The ZTE Bingo connects via HSDPA, with 7.2Mbps download speeds, has a variety of built-in popular Web services and applications, a 3-megapixel camera, a 3.2-inch touchscreen and A-GPS. The HTC Smart will use HTC's Sense user interface, has a 300MHz processor, the same camera resolution, a slightly smaller screen. Via Brew MP, both can support Adobe Flash. No prices were announced by German mobile carrier Telefonica, which said it will offer HTC Smart "at less than half the cost of smartphones today," according to a company executive.

Carriers coping with change

The device innovation highlights the struggles mobile carriers continue to have in a rapidly changing industry. Google CEO Eric Schmidt told the MWC audience that Google software engineers now focus development first on mobile platforms, and secondarily the desktop. The reason for that shift points to the tectonic changes taking place in the mobile industry.

With its aggressive expansion of mobile search and applications, and linking these with location services and mobile advertising, Google has the potential to recreate the mobile industry in its own image, where services are free to the user and paid for by advertising, according to Jagdish Rebello, director and principal analyst at iSuppli.

"Like the rest of the mobile value chain, Google is actively seeking to uncover new user behavior patterns and to drive social networking services through the promotion of cloud storage and computing, mobile advertising, and a variety of location-based services," Rebello writes. "All of the free Google offerings are driving toward this goal."

In Barcelona, mobile carriers revealed the latest experiments to cope with change. Twenty-four carriers banded together to launch a single, unified platform for mobile application development to compete with Apple's App Store and Google's Android Marketplace. The intent of the Wholesale Applications Community (WAC) is to provide mobile software developers with a cross-platform open programming standard.

But multiple operating systems and application stores will have to be supported. Telstra, Australia's biggest mobile carrier, plans to create an online "shipping center" where subscribers browse through storefronts to select applications specific to their handsets.

The LTE advance continues

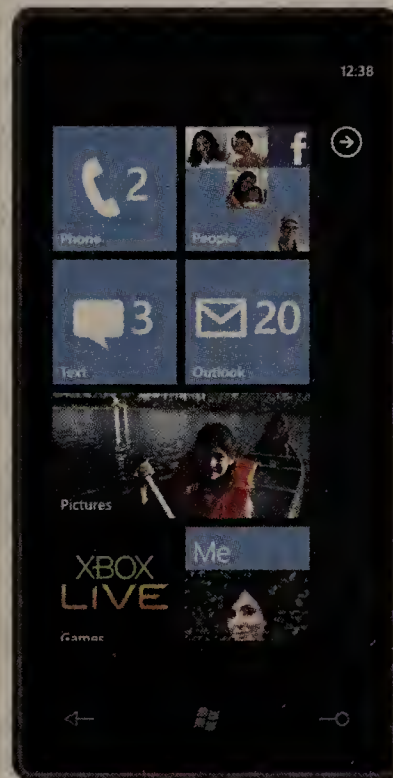
The movement toward a new mobile infrastructure based on the Long Term Evolution (LTE) standard continued:

- There was agreement on a voice-over-LTE specification, part of a push to standardize LTE services and ensure LTE devices can run on different networks.
- China mobile carrier CSL concluded the first phase of a commercial LTE trial in Hong Kong where prototype USB modems reached download speeds of up to 100Mbps.
- Japan's NTT DoCoMo showed a prototype notebook computer with an LTE modem.
- AT&T announced its selection of two base station vendors for its LTE build-out.

But these capital investments are not the endgame, analysts say. The key is services, often in partnership with Internet companies. Executives from Face-

book made a MWC presentation on their joint experiment with British-based mobile carrier Vodafone UK, noted Thomas Wehmeier, principal analyst with British market researcher Informa Telecoms & Media, in a blog post. The two companies experimented with offering free access to Facebook for Vodafone subscribers not currently using data services. "They saw an overwhelming success, with 20% of those testing out the trimmed down Facebook service adding data 'bolt-ons' to their monthly [service] plans," Wehmeier writes.

Verizon will bring Skype's VoIP application to its smartphones in March 2010, including a range of BlackBerries, Motorola Droid and Devour, and HTC Droid Eris. Users will need a Verizon data plan (and likely a Verizon voice plan), and will be able to make and take unlimited, free calls with other Skype users, and use Skype Out to make international calls to any phone at Skype's standard rates. But Verizon has released no other details. ■



With Windows Phone 7, Microsoft has radically redefined the mobile user experience.



NBC Olympic coverage: Is Internet the enemy?

NBC has no interest in maximizing viewer interest in the games, or in minimizing the loss of hundreds of millions of dollars it says it will suffer from covering the event.

I will not say much about NBC's decision to broadcast most of the more important events in the Vancouver Olympics during prime time via tape delay. This is bad enough on the East Coast of the United States where the time difference means that at least some things, such as the opening ceremony, are broadcast live. But it's ridiculous on the West Coast where viewers have to wait three hours to see coverage of events taking place just up the coast.

Instead I want to talk about NBC's technical time warp. As far as one can tell, NBC is caught in the mid 1980s when it comes to the Internet.

In that pre-Web age it was rare for the Internet to be used to bring information in real time to people around the world.

It is now a very long time, in Internet years at least, since the mid-1980s but one could hardly tell when looking at the NBC Olympics Web site. If you go to the video page and ask to view the "full live streaming schedule" you get a quite pathetic and limited list of events. When I looked on Feb. 14, curling and hockey were the only sports listed. Wikipedia says that there are 14 sports and more than 80 events during the winter Olympic games.

Most of these events will not be shown on TV in the United States. The video is available since almost all of the events are being shown on

TV or streamed over the Internet in other countries. It would not cost NBC all that much to stream the events it will not be covering on its shows. Such coverage, particularly of training and preliminary events, would increase interest in the finals, at least some of which NBC will be carrying. But that would make too much sense.

It sure looks like NBC is terrified of the Internet, and wants to have as little to do with it as the broadcaster can possibly get away with. Sadly, this is not an unusual reaction in the content business.

NBC further cripples the few things it does stream by requiring people to prove that they subscribe to NBC "partners." I have no idea why NBC feels that it is important to make it harder for people to watch its coverage, and one assumes, the ads shown during the shows.

NBC would get a lot of extra viewers if it simultaneously streamed its regular coverage without the incessant babble of announcers. I, for one, would have liked to have seen the opening ceremony the way the organizers put it on without the chauvinistic verbal diarrhea that was the soundtrack on NBC. I wound up watching it with the sound off.

Maybe next time there will be someone at NBC who was raised in the Internet age and understands that the Internet is here to stay and can be a useful tool. But I'm not holding my breath.

Disclaimer: I hope neither the law nor business school teaches the techniques of verbal diarrhea practiced so well by NBC commentators and I've not heard that NBC commentators learned their trade at Harvard, so the above TV (and non-Internet) review is mine alone. ■

Bradner is Harvard University's technology security officer. He can be reached at sob@sobco.com.



How to contract your network privacy

of cases, the Justice Department is asserting that data help by a third party, such as a cellular service provider or a hosting provider, can be demanded by government agents without a warrant.

But it's not just cloud computing that should concern you: collocation facilities, Web hosting and service-as-a-software may also expose you to a government fishing expedition. How can a business protect against inadvertent disclosure of proprietary information and the possibility of loss of data and service due to an overeager sheriff? Having the right contract is certainly a good start.

There are two aspects you have to consider when negotiating security and privacy with a service provider. First, you have to have the correct principles encoded in your contract. Second, you have to worry about how well they are executed by the provider.

If you read most service contracts you will see that "law enforcement assistance" sections are usually vague. It is up to you to negotiate terms that address key issues of data protection and safeguard your rights:

- Demand that law enforcement requests are properly documented. Show me the warrant. A phone call from agent Bob at headquarters is not a warrant.
- Demand that you are notified of any requests that may affect your data. You have the right to contest warrants in court and most corporations do contest them.
- Demand that each data access request, whether granted or not is documented.

If you see the usual weak clauses that read: "ISP will make data available to law enforcement and third parties to assist in investigations" you should be very worried. The standard set by the clause above is "we give your data to pretty much anyone with a badge and a hunch, sometimes not even a badge".

Improving the contract language is, of course, not sufficient. The contract is rarely reviewed when the FBI comes calling for your neighbors' data. This is where the service provider size matters: Large experienced providers with good privacy practices deal with hundreds if not thousands of warrants and they have teams of lawyers who do not just roll over at the first sign of an eagle on a faxed letterhead. Smaller providers may not have any process in place. When someone calls at 3 a.m. and scares the junior help desk person, your data will be on a truck in an hour.

Then again, one of the largest telecom companies was found to have a "portal" where millions of undocumented records requests were funneled through with no audit or notifications. Ask your providers about their data privacy processes and legal departments. Ask how many requests they get and how they deal with them.

When you put your data outside your company's walls (literally), you lose some control. Use your contract to re-assert control and then ask the right questions to make sure the provider can honor their obligation to protect your data. ■

Antonopoulos is a senior vice president and founding partner at Nemertes Research, an independent technology research firm. He can be reached at andreas@nemertes.com.

EXECUTIVE **VIEWPOINT****Keith Valory**

SENIOR DIRECTOR, STRATEGY & OPERATIONS, SECURITY TECHNOLOGY BUSINESS UNIT, CISCO SYSTEMS (STBU)

Keith is responsible for the development of strategies to accelerate growth through resource investments, partnerships and

acquisitions. He is also responsible for prioritizing and leading projects focused on key strategic initiatives and ensuring that the operations of the STBU are tightly aligned with its strategy and these initiatives.

Best of Both Worlds

Blending cloud and on-premise solutions optimizes email security for enterprises large and small.

Cisco's Keith Valory extols the merits of deploying email security infrastructure across both the cloud and the customer's network.

What is hybrid-hosted email security?

Hybrid-hosted email security is a unique offering that deploys dedicated infrastructure across Cisco's cloud and the customer's on-premise environment.

"The hybrid-hosted model offers a dedicated infrastructure for each customer in the cloud."

For example, inbound email can be scanned in the cloud to make sure malware never gets into the network, while advanced controls for outbound email, like data loss protection and encryption, can be applied on the customer's premises. Designed for enterprises large and small, hybrid-hosted email security provides every customer with flexible options to deploy email security the way they want, with the same market-leading technology across all form factors—on-premise, hosted and hybrid-hosted—and backed by industry leading service level agreements.

Why is a hybrid-hosted model appealing in today's business climate?

IT administrators are burdened by a number of countervailing forces. Drivers of openness—including mobility, collaboration, globalization and Web 2.0—pressure administrators to put fewer restrictions on users. Meanwhile, the proliferation of spam and other Internet threats drives tighter controls. And all of this plays out in

a business climate of flat or shrinking budgets. It is especially challenging for email administrators as email is the primary form of business communication. The hybrid-hosted model helps alleviate some of this pressure by allowing threat prevention to be done in the cloud, greatly reducing the traffic that actually hits the customer's network and bringing some predictability to management and budgeting.

Does this model have different benefits than a hosted model?

The hybrid-hosted model offers a dedicated infrastructure for each customer in the cloud, rather than one infrastructure across a number of different customers. This allows companies to maintain their messages as business-relevant documents more securely. It also eliminates the "shared fate" risk—that is, every customer has confidence that an issue with someone else's infrastructure in the cloud will not affect them. The benefit is that it provides for the same feature richness whether security is deployed on-premise or in the cloud.

What management benefits come with a hybrid-hosted approach?

Whether in the customer data center or the Cisco cloud, the management experience is exactly the same. Customers can choose the level of control that best fits their requirements. Under our co-managed model, the customer and Cisco share access and control of configuration

and reporting. For example, the customer can troubleshoot the status of a message and generate ad-hoc reports for internal meetings without logging service tickets. At the same time, Cisco can monitor system health, perform upgrades, and make configuration adjustments. It's the best of both worlds.

Why does Cisco IronPort offer different deployment models?

Our goal is to provide market-leading email security with flexible deployment options. Today, we have customers using all three form factors: on-premise, hosted and hybrid-hosted. Obviously, a large segment of the market is increasingly confident in outsourcing security and we need to be responsive to that. So we're looking to drive these flexible deployment options across all our security products. As with email security, we now offer such options for Web security, and will continue that trend with other security technologies where it makes sense for our customers.

FOR MORE INFORMATION

Find out how a hybrid-hosted email solution can reduce your onsite footprint while still allowing you to maintain control of confidential information within your company's physical boundaries. Download the data sheet "Cisco IronPort Hybrid Hosted Email Security" at www.networkworld.com/CiscoEVP2



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► **Jobs**, from page 1

Leading universities report that enrollment in computer science and engineering courses is up significantly this year among students pursuing computer science majors as well as those studying other subjects, particularly science or business.

"I think the job market is what's driving the growth," says Professor Bruce Porter, chair of the Department of Computer Sciences at the University of Texas at Austin, which has seen its enrollment increase more than 5% this year. "The government has made it clear that computer science is a growth field, and I think that message is getting back to students and their parents."

Corporate recruitment of top computer science grads has remained steady throughout the economic downturn. Last spring, at the height of the recession, Georgia Tech's College of Computing had the highest job placement rate of any major on campus and the highest starting salary.

"We had placed 87% of our undergraduates in jobs as of last spring," says Cedric Stallworth, assistant dean of undergraduate enrollment at Georgia Tech's College of Computing. "The financial sector — credit card companies, insurance companies — are very much interested in computer science students, as are defense companies and software development and networking companies."

Computer science grads from the University of Illinois at Urbana-Champaign are being recruited by software, healthcare, trading and agricultural companies. Last year's grads received an average of 2.3 job offers and had an average starting salary of more than \$72,000 — the highest of any starting salary in the university's College of Engineering.

"We really didn't see a drop in recruiting efforts," says Cynthia Coleman, associate director of external relations for the University of Illinois' Department of Computer Science. "We have seen a significant increase in companies in other industries that typically haven't recruited in computer science interested in our students. What a lot of our students are going to realize is that every industry has computer science needs."

Solid job prospects

The message about solid job prospects and starting salaries as high as \$105,000 for computer science majors is resonating with college students and their parents.

At Stanford University, the number of students declaring themselves as computer science majors is up 40% from last year. The university attributes this dramatic rise partly

to the fact that its required computer science courses were streamlined and more areas of concentration added. But the rest of the increase is attributed to the recession.

"We surveyed our students to see why they declared computer science as their major," says Professor Mehran Sahami, associate chair for education in the Computer Science Department at Stanford. "What we found is that half of the increase was from the change in our curriculum and the other half was from macro-economic conditions. Especially in these challenging economic times, students consider computer science a safer choice."

More than half of Stanford's undergraduate students are taking the department's introductory computer science class this year. This represents an increase of 20% over last year.

"We will probably have 800 students take it this year," Sahami says. "Our students do

Computer science also is a backup for business students who once may have pursued lucrative jobs in investment banking.

"Last year, a bunch of students saw that maybe not all the interesting jobs in the world are in the financial industry," says Professor Andrew Appel, chair of the Department of Computer Science at Princeton University. "It used to be that a good portion of our computer science majors went to Wall Street. Last year, fewer went to Wall Street.... Maybe there was a little scrambling, but we didn't have a problem with unemployed graduates last year."

The trend will continue next year, as applications to top computer science programs pour in.

Cornucopia of jobs

The University of Illinois says the number of applicants to its Department of Computer Science is up 26% from last year to 860.



Especially in these challenging economic times, students consider computer science a safer choice.

PROFESSOR MEHRAN SAHAMI, ASSOCIATE CHAIR FOR EDUCATION IN THE COMPUTER SCIENCE DEPARTMENT AT STANFORD UNIVERSITY

believe that having some computing skills will be useful in other fields, whether in a scientific field where they see the immediate applicability in simulations or longer-term, where they think it's a good skill to have."

Computer science is not only a more popular major, it's also a more popular field of study for students majoring in something else. At the University of Illinois, for example, informatics is now the most popular minor on campus.

"Everybody is realizing that IT is going to be important in the marketplace, and they are looking to beef up their resumes with some kind of certificate or qualification that would give them an edge," says Professor Lenny Pitt, director of undergraduate programs for the Department of Computer Science at the University of Illinois.

The interest in computer science courses is especially strong among students pursuing science-related majors.

"Computational biology, computational medicine — computation is just invading so many other disciplines," Porter says. "What we're seeing is that a number of students have a fundamental interest in astronomy or biology or chemistry, and they see computer science as playing a key role in that field."

"The projections that have come out from the Bureau of Labor Statistics have indicated a relative cornucopia of jobs in the near term for computer science majors," Pitt says. "Parents may well be aware of the job opportunities in the IT industry, which is suffering the least despite the downturn."

At Carnegie Mellon University, the number of applicants to the School of Computer Science's Computer Science Department reached 3,000 this year, up 14% from last year and up 76% from 2005. The department caps enrollment at 130 students per year for a total enrollment of fewer than 550 students.

"We're getting very close to the peak, which was 3,237 applications in 2001," says Catherine Fichtner, program coordinator for undergraduate education in the Computer Science Department at CMU's School of Computer Science.

One reason applications are up at CMU's computer science program: high starting salaries. The median starting salary for 2009 graduates was \$80,000, with the highest reported salary at \$105,000.

"Our salaries were pretty consistent last year," Fichtner says. "Our students have always been able to find jobs, and 30% of our students go on to graduate school." ■

TOOLS

Vitamin D boosts your video surveillance

You've got cameras all over your facility. There are cameras in reception, the loading bay, the hallways, the data center ... pretty much everywhere, and you accumulate footage by the gigabyte every day. So how do you find the bits containing people?

Many video systems let you set up movement triggers to flag events. These usually operate by software monitoring all or part of the video frame for changes in pixel data that exceed a certain threshold. This threshold is intended to eliminate false positives from, for example, curtains blowing in the wind or dogs wandering about.

The problem with this approach is it's crude. While slight movements of the curtains or Matilda's Chihuahua are handled just fine, a windy day or the boss' Great Dane will trigger more alerts than you can shake a nightstick at.

Today's helping of high-tech grooviness, Vitamin D from Vitamin D, does for video monitoring what "American Idol" does for singing, to wit, takes thousands of boring and irrelevant examples and shows you just the good stuff.

Vitamin D was developed using the Vision Toolkit based on Numenta's Hierarchical Temporal Memory (HTM) technology. Numenta was co-founded by Jeff Hawkins, the founder of Palm Computing and HandSpring, and the HTM system is based on a Hawkins' theory of how the human brain performs pattern recognition.

If you've had experience with pattern

recognition technologies such as neural networks, HTM will seem familiar. Like neural networks, HTM systems use interlinked layers of processing, but instead of emulating neurons as neural networks do, HTMs emulate the structural organization of brains.

The Wikipedia entry: "An HTM comprises a collection of nodes that are arranged in a pyramid-shaped hierarchy. [An] individual [node] of the hierarchy self-discovers an array of causes in the input patterns it receives, both in spatial and temporal terms."

In other words, this ain't yer father's machine larnin'...

What the Vitamin D product does is monitor video streams from either USB or IP cameras and, through its pre-trained HTM subsystem, detect people as well as things

that are not people but moving.

Depending on rules you can define for individual cameras, when Vitamin D finds a person or an unknown moving object in the scene (optionally restricted to when the person or object enters through a door, crosses a boundary or enters a specific area of the



Mark Gibbs' Gearhead

Vitamin D ... speeds up reviewing video surveillance footage by orders of magnitude.

IT asked and answered

Ron Nutter and Steve Blass tackle your tough tech questions at tinyurl.com/yg2o434

My company has offices around the country on an MPLS cloud and we've been having periodic outages, usually related to the last mile. Management is asking for a way to keep the offices up. Any suggestions? We are a Cisco shop, if that helps.

➔ One option is to get a DSL connection installed to the router. Using Cisco's DMVPN offering, you can have the offices come back to corporate when needed or go direct to another office when needed. Using the interface tracking function in IOS, you should be able to engineer an auto-switchover function that will bring up the VPN tunnel from the remote office when the MPLS connection goes down. Once MPLS comes up, they should automatically switch back over. If MPLS starts flapping, you might want to look at some type of delay before the office would try to switch from the VPN to MPLS connections. Another option is to look at cellular data cards that allow you to connect over networks such as Verizon and AT&T. The challenge is that the bandwidth will be less than a T1, and you may need to look at an external antenna depending on how far away you are from the cell tower. You could also consider satellite. Put together a cost vs. speed vs. pro/con list for the various options. That will help you go to management and show them the real costs for always having a connection up for an office.

GADGETS

Will your iPhone become your GPS? Not likely

THE SCOOP

TomTom car kit for iPhone

about \$120. Separate application required for turn-by-turn navigation, which costs \$59.99 through the iTunes Store.

► **What it is:** This is a docking station for your iPhone that can mount to your car's windshield or dashboard for when you want to use the separate TomTom navigation app, or if you want to mount the iPhone on your windshield for hands-free calling, listening to music or to just use as a device recharger.

► **Why it's cool:** The mount is very easy to install on the windshield; just suction it on and twist the dial to get a tight fit. The bracket also rotates to let you use your navigation application in landscape mode. The line-out jack connects to your auxiliary audio input (if your car stereo has one) to allow you to listen to music while getting the GPS navigation. The mount also has a built-in microphone that enhances the speakerphone for hands-free calling.

► **Some caveats:** The docking station and the separate TomTom navigation app required for turn-by-turn navigation is very overpriced. For almost half the price, you could buy a stand-alone basic unit from TomTom or another maker. True, there are more expensive stand-alone units, but you know with any GPS you'll get positioning that keeps you on the road. In my tests with the TomTom app and my iPhone 3G, the GPS fix was so bad that I was constantly being "thrown off" the road and onto local roads, and I was driving along a major highway (the Massachusetts Turnpike) at the time. Stopped at a traffic light on local roads, I would often bounce

around from road to road.

The car kit is supposed to include an enhanced GPS receiver built in, but it didn't do anything to enhance the signal or prevent the application from putting me on the wrong roads. A TomTom free app that is supposed to show GPS information and give your location also failed to recognize when the iPhone was plugged into the dock.

The auxiliary audio jack in your car is an absolute necessity if you want to hear any voice directions coming out of the app — my older car doesn't have one, so the voice directions sounded like Charlie Brown's teacher (or a muted slide trombone). When I used a different car that had the audio jack, the audio voice sounded good through the car's speakers.

Because I was using an iPhone 3G, it's possible the GPS abilities of the iPhone 3GS would be better, but I didn't have one available for testing. If you own a 3G model, I can't recommend this at all. If you own a 3GS model, use at your own risk.

► **Grade:** ★ (out of five).

Shaw can be reached at kshaw@nww.com.



Keith Shaw's Cool Tools



The TomTom car kit for the iPhone is not worth the money.

TRUE FACT

88%

of 100 drivers surveyed admitted to using their cell phones to text, e-mail, surf the Web or have a conversation while on the road.

SOURCE: ODBEDGE

► Gearhead, from page 19

scene), it can generate an audio alert, save the video clip with a line drawn around the detected object, or send an e-mail message with a still of what was detected.

The performance and accuracy of Vitamin D is very impressive and it speeds up reviewing video surveillance footage by orders of magnitude.

This is the first release so there are a few rough edges: For example, the software really needs a "throttle" on how many and how often notifications are sent. It also needs an API because you'll probably want to send event notifications using other services (such as instant messaging) or integrate with a network management or security system. The company says these features and many others will be available in near future releases.

Vitamin D is available for free to use with a single camera at QVGA (320x240) resolution, while two-camera support at either QVGA or VGA (640x480) resolution costs \$49. A version supporting unlimited cameras (typically two per processor core) and both resolutions is priced at \$199. Vitamin D gets a rating of 4.5 out of 5. This is very impressive and amazingly cost effective compared with other available solutions.

Gibbs detects all objects in Ventura, Calif. Your events to gearhead@gibbs.com.

Credit card data security: Who's responsible?

Credit card issuers need to step up



PHIL LIEBERMAN,
president & CEO,
Lieberman Software

LAST YEAR'S INFAMOUS HEARTLAND BREACH should be a wakeup call that it is time for credit card issuers to step up and address the security issue that exists in this country with respect to protecting customer information.

A perfectly good solution is being used in other countries to minimize Card Not Present (CNP) fraud and card cloning: smart cards. This solution is not available to American consumers, merchants or credit card processors because card issuers have not been mandated by the U.S. government to implement it.

The current environment for both merchants and credit card processors with respect to security and liability represents a Catch-22. Conflicting agendas and disproportionate power

have created an insecure financial environment for credit card processing. Card issuers are able to transfer all liability for credit card losses to merchants and processors even though they have the ability to stop almost all losses from fraud and account disclosure.

Because card issuers are not liable for losses that stem from their use of static cards (which are much less expensive than smart cards), they have chosen not to modernize their card infrastructure. That punishes merchants and processor companies such as Heartland Payment Systems, which can do nothing to protect what cannot be protected: static credit card numbers and static CVV codes (the three- or four-digit numbers printed on the card).

The credit card issuers don't care about the cost of compromised cards because they can simply fine everyone else with arbitrary judgments and without government oversight.

In the case of the Heartland breach, where intruders hacked into the systems used to process 100 million payment card transactions per month for 175,000 merchants and recorded credit card and CVV numbers from an internal data stream, smart card technology would have rendered the whole endeavor useless.

Smart cards generate unique one-time only responses to financial transaction requests from the banks that issue the cards, so the data stolen

► See **Smart cards**, page 22

Getting better but need new tools



HENRY HELGESON,
co-CEO, Merchant
Warehouse

A DATA BREACH AT A credit card processing firm causes an enormous amount of financial and brand damage, so it is not necessary to punish the victims further. What the government needs to do is focus its efforts on the criminals and stop villainizing the victims. That said, the government has made it easier to deal with breaches and companies can and must do a better job of protecting data.

Credit card processing companies work hard to protect data. The Heartland case was unfortunate, but not gross negligence. And when Heartland was breached it certainly had enough problems without being fined and penalized by the government. But the silver lining is that this and other breaches have pushed the

whole industry forward.

Consider the Data Breach Notification Act (S.139), which was introduced in the House on the heels of the Heartland breach and was recently passed. The law requires "all Federal agencies and persons engaged in interstate commerce, in possession of data con-

taining sensitive personally identifiable information, to disclose any breach of such information". And it means we have to answer to one regulatory body rather than 51 (all the states and D.C.). If you have to follow 51 sets of regulations, you're spending more time on regulations than you are on developing your business.

When Heartland went down we all said, "Wow, this can happen to us. We need to lock things down." The good news is there are solutions out there — such as end-to-end encryption — that can help. My company, Merchant Warehouse, was one of the first companies to deploy E2E encryption. The data is tokenized, ensuring it is not usable if someone's network is breached.

There is another technology I believe will help tremendously in the future, and that is MagTek's MagnaPrint technology. It is inexpensive, effective and very efficient. It works like this: iron particles are sprayed onto the magnetic stripe on the back of a card in a random pattern, essentially giving each card its own fingerprint.

► See **Controls**, page 22

Which approach is better?

**71% vote with Lieberman
to encourage smart cards**



**29% vote with Helgeson
to adopt more controls**

82 votes

Cast your vote at
tinyurl.com/yhycrv

► **Smart cards, from page 21**

would no longer be valid. The cards are also locked with a PIN code, so even the physical loss of cards is a non-event. The data transmitted should be encrypted, but it does not have to be because the data stream is only good for one transaction. Attempts to use the same data a second time simply does not work.

While the industry has embraced the Payment Card Industry Data Security Standards in an effort to safeguard sensitive customer credit card information, unfortunately PCI-DSS does not deal with sophisticated attacks, nor does it provide any sort of safe harbor for those that implement it.

To protect against sophisticated attacks, all organizations conducting credit card transactions must implement more complex security strategies and technologies such as network sensors and heuristic traffic analysis, and conduct constant security auditing of their systems, traffic and personnel. And even if all of these efforts are undertaken, there is still no safe harbor.

The solution to Heartland-type problems is simple. First, mandate smart card technology for all credit card transactions and bring the United States into conformance with all other countries with respect to stopping fraud at its source: static credit card numbers. And second, transfer the liability back to the credit card issuers unless the merchant and processor are culpable in the breach due to malfeasance. Culpability should be decided by a court of law.

If the U.S. government were to mandate that credit card issuers be responsible for losses due to fraud that inherently stems from the use of static credit cards, the transition to Smart Card technology would be a de facto decision and this type of crime and liability would be eliminated in less than a year.

Lieberman is president & CEO of Lieberman Software, which provides privileged identity management and security management solutions. He can be reached at phil@liebsoft.com.

► **Controls, from page 21**

MagTek says examining the fingerprint and combining that information with the card number makes it possible to identify whether it's the original card or a duplicate. When you combine these two aspects, it is almost impossible for criminals to do anything but steal the actual card. Using the MagnaPrint technology would move us from the criminal that creates mass destruction by hacking in and stealing 100 million card numbers, to the petty criminal who's committing face-to-face crime we really can't do anything about.

What haven't caught on in the United States are the chip-and-pin smart cards. We tried this technology with several pilot programs, including the Atlanta Olympics in 1996, and it wasn't that successful. One, it's expensive, and two, it takes a massive change: new, more expensive cards have to be issued; merchants need to purchase new hardware; consumers need to change behavior; and the networks and processors, like Merchant Warehouse, need to adapt.

The reason chip-and-pin cards work well in other parts of the world is twofold. First, the United States had already accepted MagStripe as the industry standard while other countries were still developing their card infrastructure. And second, telecom in the United States is inexpensive, ubiquitous and reliable. Chip-and-pin cards are popular elsewhere because they enable you to process transactions in areas where you might not be able to access dial-up.

Credit card processing organizations and merchants, under the Data Breach Notification Act, will now have an easier time in reporting breaches, as they will only need to report to one overseer. It's now up to the industry to begin adopting the technology available in order to more securely lock down the sensitive, personal information that is transacted every day. Adopting these technologies will allow for more efficient and seamless business and a stronger faith in the financial system.

Merchant Warehouse is a provider of credit card processing solutions.

US held hostage by VISA/MasterCard

➔ EMV, the smart card standard for chip and pin, is an open standard that is used in every G-8 and G-20 country around the world except the U.S. Because the rest of the world is using chip and pin, criminals from other countries have flooded the U.S. to take advantage of our unsecured payment card system, making the U.S. an easy target for fraud, ID theft and criminal activity. We need smart cards that are based on the same standard world-wide to prevent fraud and to ensure cards of U.S. travelers will be accepted everywhere. **ANON**

Smart cards are a waste

➔ They make every merchant in the U.S. buy new hardware to take chip and pin? That would be ridiculous. There are a ton of other solutions that can

be implemented using software... like true end-to-end encryption. **ANON**

Encryption only solves part of the problem...

➔ How does "end-to-end encryption" stop petty criminals from breaking into cars and physically stealing credit cards and using them? That's right, it doesn't! Smart cards not only provide superior protection for processing information at rest, they also provide physical security when wallets and purses are stolen. Let's consider solutions that solve more than half of the problem! **DAN C.**

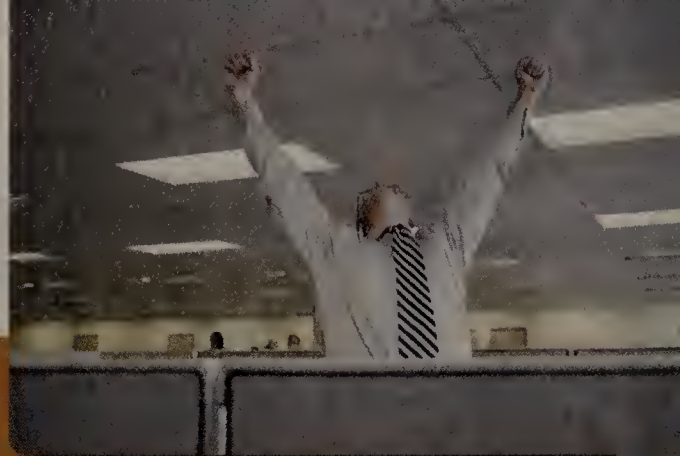
He who loses it pays for the loss

➔ If you borrow my snow blower and it gets stolen out of your garage, it's your fault, not mine. If I require you to adequately secure your garage as a

condition of borrowing my snow blower and you fail to do so, you're liable for your failure to act. If you are not willing to abide by my requirements, don't ask to borrow my snow blower. If you lie about your willingness to secure my snow blower, I am going to use the full force of law and contract language against you to make me whole for my loss. If you have voluntarily opted to take or process my credit card number and you lose it, it's your fault, not mine. Anybody who thinks technology is the answer to security does not understand technology and does not understand security. **ANON**

The bottom line

➔ "Because card issuers are not liable for losses that stem from their use of static cards..." and the fact that the issuers make a little fee on each fraudulent transaction, it is not in their best interest to eliminate fraud. **ANON**



IN CONTROL

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ON TIME

INSTEAD OF OUT-OF-TIME.

OH YEAAAH!

INSTEAD OF OH-NO!

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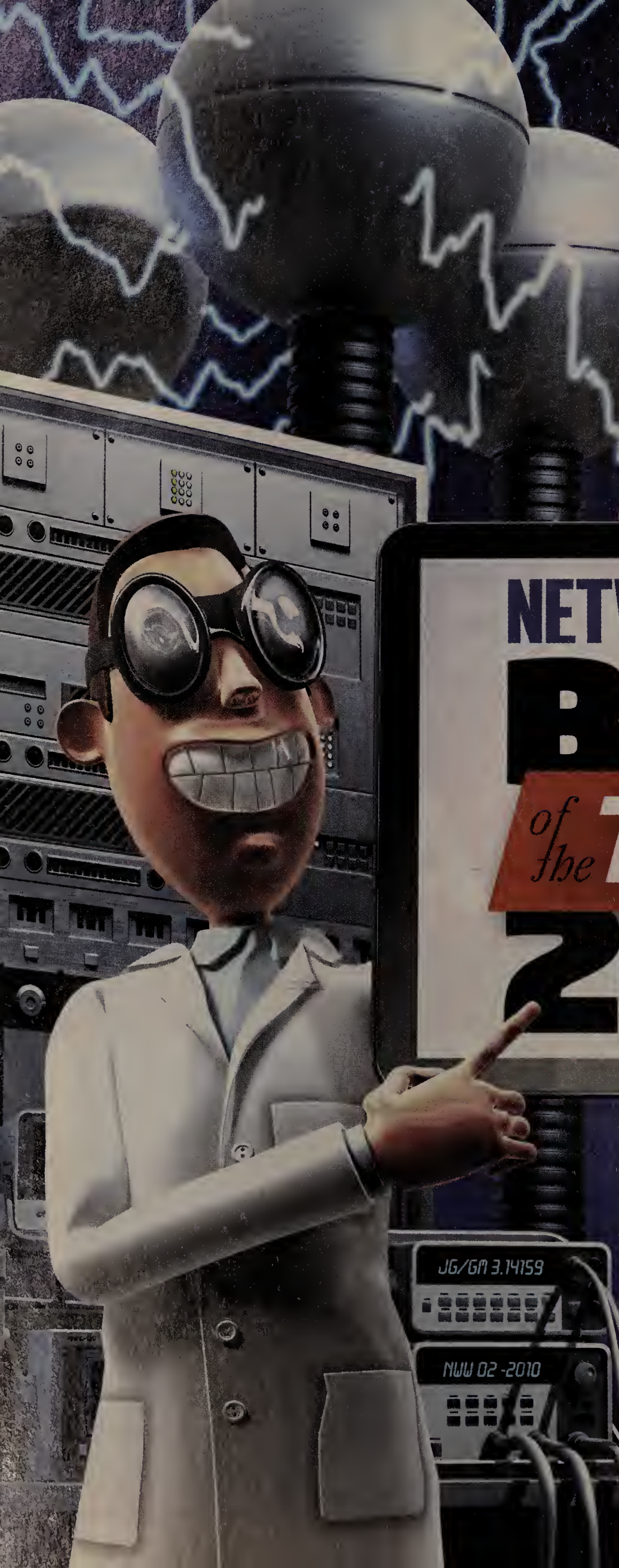
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We tested more than 100 products in 2009 in a wide variety of categories, but 15 of those products stood head and shoulders above the rest and earn our Best of the Tests Award. Here are the categories and winners.

NETWORKWORLD BEST *of the* TESTS 2010

OPERATING SYSTEMS

VENDOR **Microsoft**

PRODUCT **Windows Server 2008 R2**

WE TESTED A raft of operating systems in 2009, including SUSE Linux, Ubuntu and Apple Snow Leopard. But the operating system that stood out was Microsoft's Windows Server 2008 R2. This product delivers advancements in speed, security and management.

Windows Server 2008 R2 boasts new server administrative roles for better security, an improved Server Manager program, revamped Internet Information Server (IIS) Web management functionality, better Active Directory controls and redesigned Windows Terminal Services. Windows

Server 2008 is also significantly faster than Windows Server 2003.

And while Windows Server 2008 R2 certainly stands on its own, the fact that it's integrated so nicely with Windows 7 is an additional bonus for IT execs.

MANAGEMENT SOFTWARE

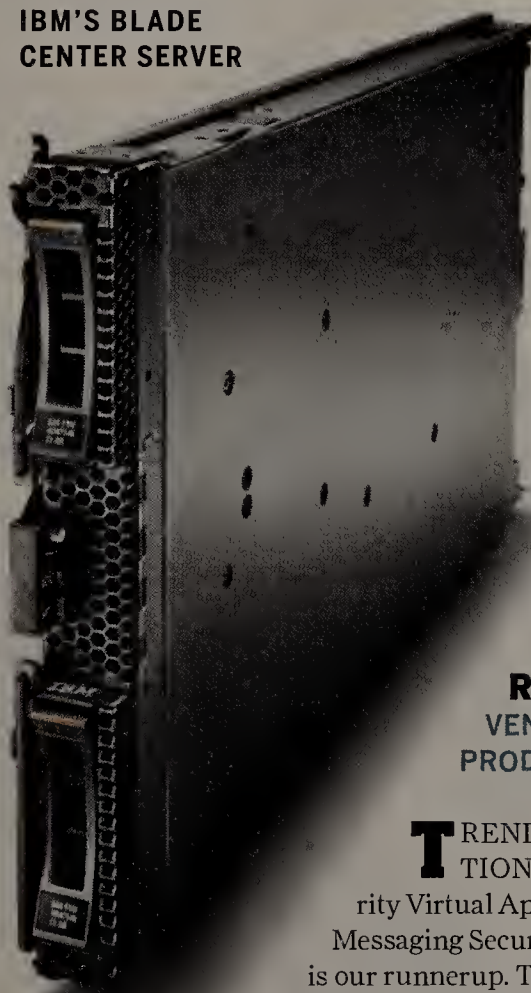
VENDOR **Research in Motion**

PRODUCT **BlackBerry Server 5.0**

THERE'S NO KEEPING users from their BlackBerries, but there is a way for IT to manage those devices — Research in Motion's BlackBerry Enterprise Server 5.0. We found BES to be an easy-to-use, Web-based tool that provides centralized administration, high availability and the ability to set rules and policies on a granular level.

With BlackBerry Enterprise Server, an administrator can publish and push updates and applications to one user or groups of users. The administrator can also identify unauthorized applications and prevent users from downloading, using or updating prohibited programs or applications. When a BlackBerry device is activated, the new security policy supersedes any previously installed programs or policies. Can your iPhone do that?

IBM'S BLADE
CENTER SERVER



SERVER HARDWARE

VENDOR **IBM** :: PRODUCT **BladeCenter Server HS22**

TWO EIGHT-CORE Intel 5570 Nehalem processors, two 10Gigabit Ethernet network interface cards, 50GB SSD drives, 150GB 15k hard drives and 48GB of RAM. Not to mention energy efficiency and strong management features. And all for around \$10,000. What's not to like?

In our tests, the Nehalem-based blade delivered a 10x increase in performance when compared with Intel's Core-based Xeon processor. In terms of total overall power consumption, the Nehalem processors consumed 17% more power than the Xeon-based system, which is a pretty good bargain when you're gaining a 10x boost in performance.

Bottom line: The combination of Nehalem processors, 10G Ethernet and lots of RAM make the HS22 a great choice for data center virtualization.

SERVER VIRTUALIZATION

VENDOR **VMware** :: PRODUCT **vSphere 4.0**

VMWARE CREATED THE market for x86 server virtualization in 2001 and has been the leader ever since, although Microsoft's Hyper-V and Citrix XenServer are strong competitors. In 2009, VMware raised the bar with the introduction of vSphere, a cloud-focused product that is faster than its predecessor, ESX 3.51, easier to manage and designed for provisioning fleets of virtual machine farms.

The basic components of what VMware calls the vSphere 'cloud operating system' are an improved hypervisor and VMware's VirtualCenter management application, along with options such as vMotion (live VM inter-server migration), vSphere Zones (network security aggregation), distributed resource allocation and even a distributed network switch.

These improvements allow vSphere 4.0 to manage and automate provisioning of internally controlled VM farms and infrastructure with hosting platforms located outside an organization's traditional computing 'perimeter'.

SECURITY

VENDOR **McAfee** :: PRODUCT **Web Gateway**

MCAFEE'S WEBGATEWAY bested the competition in every one of our performance tests. We attacked each vendor's product with 100 malware instances. Web Gateway turned aside 99. We fed each gateway 1,000 e-mails — 500 phish and 500 non-phish. Web Gateway came in first with a 90% success rate. And in our latency tests, Web Gateway exhibited the lowest latency — 28 ms.

Web Gateway sports an easy-to-use, intuitive browser-based interface that's especially responsive. Reports are quick and informative, and the Web Gateway dashboard is completely customizable. And the McAfee Web Gateway installation was the slickest. A USB memory stick containing a configuration program accompanies the device. Insert the memory stick in a Windows machine, run the program, save your configuration, move the memory stick to the Web Gateway before boot time and — voila! — the Web Gateway uses the IP address and other configuration data you've specified.

This is the second time around for McAfee's Web Gateway. The product was a Best of the Tests winner back in 2006 as well.

RUNNER UP

VENDOR **Trend Micro**
PRODUCT **InterScan Web Security**

TREND MICRO'S COMBINATION of InterScan Web Security Virtual Appliance 5.0 and InterScan Messaging Security Virtual Appliance 7.0 is our runnerup. The Trend Micro software delivered a 96% success rate in blocking malware and an 84% success rate in blocking phishes.

Trend Micro's tool gave us consolidated threat reporting and corporate policy management across our network. We easily varied security policies by network segment, company division and company department, at our option. We particularly liked Trend Micro's unified view of network security across an entire enterprise.

Also, you install the software on your own computers, thus giving you fine control over the speed and capacity of your gateway. Installation is a snap.



SOFTWARE

VENDOR **Microsoft** :: PRODUCT **SharePoint Server 2010**

OUR POLICY IS to not test beta versions of products. There are lots of reasons for this, but mostly it comes down to the notion that we're trying to give readers information to help them make buying decisions. And that means we test the actual product that customers would buy. But there's an exception to every policy — and it's SharePoint Server 2010, which we tested in beta, and which came out on top in this year's software category. Interest in this product was so high that we felt we had to write a review as soon as we could get our hands on the product. And we weren't disappointed.

We tested beta versions of SharePoint Server, and two related applications, Visual Studio and Office 2010, in a virtualized environment and found that SharePoint Server 2010 is faster and more intuitive than the previous version. SharePoint 2010 lets IT departments run applications such as enterprise search, content management, collaboration and business intelligence on a single platform.

Together with improved Internet site capabilities, SharePoint 2010 means companies can avoid the licensing and training costs associated with separate apps. SharePoint 2010 also offers improved developer and administration capabilities, which will likely speed application creation while easing server management.

SharePoint 2010 is expected to ship early this year.

STORAGE

VENDOR **Compellent** :: PRODUCT **Storage Center 4.0**

THE BEST OF our storage-area network systems test was the Compellent Storage Center 4.0. The product offers a compelling mix of high performance, great ease of use and wide feature set, at a price that isn't over the top. It has all the features you'd expect in a SAN system, such as synchronous and asynchronous replication, snapshots and thin provisioning, as well as some features that other systems don't have — particularly the data progression feature, which automatically migrates the most-used data on the system to the fastest storage. This feature makes the best use of the fastest storage on the system, whether 15k drives or SSDs, with little or no effort on the part of the administrator. Mature, easy to use and operating at the block level, it is more usable than the recently released and widely publicized LUN-level automated

COMPELLENT'S
STORAGE CENTER 4.0

storage tiering from one of the big names in SAN technology.

The biggest differentiator for Compellent may be its ease of use. While most SAN systems offer similar functionalities, a system that can set up remote replication over the Internet to another SAN in six mouse clicks is noteworthy. Add to that a good value and high performance, with support for SSDs, 8Gbps Fibre Channel and 10Gbps iSCSI, and you have a winner.

DESKTOP VIRTUALIZATION

VENDOR **Parallels**
PRODUCT **Desktop for the Mac**

WANT TO RUN Windows on your Mac? Check out Parallels Desktop for the Mac. In our testing, Parallels was strong in features and usability, and its 64-bit guest virtual machine support provides flexibility for developers. We could run Mac OS X Leopard client or server as a guest

We were able to import VMware or Virtual Box files (guest VM snapshots, or rapidly mountable VM guest operating systems) easily. Parallels Transporter let us convert other formats of VMs into the Parallels format.

Windows XP (this test took place before Windows 7 was released) installed easily for us, with no interaction except for entering the username and product key. Parallels has preformatted settings for XP. Another useful Parallels feature is the ability to mount a Windows VM guest's NTFS file system into the Apple MacOS 10.5 Finder application. We could access all the files directly like an external hard disk. We could easily drag and drop files and folders between Mac and XP VMs. It's even possible to have the Apple Spotlight application index the VM Windows guest drive, a feature that wasn't available in the other hypervisor products we tested.

RUNNER UP

VENDOR **Pano Logic** :: PRODUCT **Pano Cube**

PANO LOGIC'S PANO CUBE is a very small 'designer'-looking cube containing three USB jacks, VGA and audio/mic jacks. It has no CPU or memory/storage inside, permitting it to be used strictly as a KVM+ access device.

The Pano Manager provisions desktops through ESX/vCenter and also enables policy controls about what IO can go through the Pano Cube. It's possible to restrict printers, and so on for any particular session. The Pano Gateway in turn sets up connection brokerage relationships for VPN and proxy access from branch to 'home'.

Pano Device setup was very simple. Pano Manager allows for persistent and non-persistent VMs to be used. VMs can be organized into collections, which can host a number of VMs in which the Pano Cubes connect as a single logical unit. The Cube Clients, we found, are extremely fast. They log on in just seconds, and were able to reproduce multimedia very well — even when we loaded the hosted VMware server down (a local host with 8GB of RAM) with all 10 Cubes sent to us.

The Pano Manager and Cube require VMware, but it's a decent investment. And Pano Cube's simplicity is bliss.



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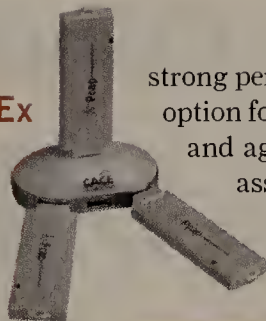
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WIRELESS

VENDOR **CACE Technologies** :: PRODUCT **AirPcapEx**

OUR EXTENSIVE wireless LAN testing in 2009 resulted in several products which received a perfect score of 5.0. But the best of the best is the AirPcapEx tool from CACE Technologies. This comprehensive yet simple packet-capture tool is perfect for those all-too-common situations faced by practitioners and operations professionals alike when it's necessary to dig into the dialog between client and access point to really understand why performance is so unexpected, why security is now so tight that no one can connect, or why erratic client behavior is just that.

It's based on the very popular WireShark tool, and integration is seamless. It's available at a bargain price, and developer tools are available.



strong performance and low power consumption make it a viable option for large and midsize organizations in the market for core and aggregation switches. And HP seems to agree with our assessment. HP cited the H3C as one of the key assets in its acquisition of 3Com.

E-MAIL

VENDOR **Microsoft** :: PRODUCT **Exchange**

YES, 2009 WAS quite a year for Microsoft, with major releases of Windows, Windows Server and Exchange, Microsoft's e-mail platform. So, is Exchange 2010 an overgrown, bloated hog of an undocumented application, requiring enormous resources and costing a fortune? Or has Microsoft finally gotten it right, building the speed and reliability we need into a mailbox server that goes beyond simple e-mail and raises the bar for collaboration tools? The answer to both questions is "yes." It all depends on how you use it.

The core of Exchange is finally where we want it: reliable, fast and resource-stingy. Exchange 2010 is also heavily Web-focused, supporting the inevitable march towards a clientless e-mail, calendar and address book experience.

Of course, Exchange 2010 also has some bloat. Obscure inter-server communications pathways, connections to VoIP PBXs, obscure digital rights management and an edge server that is best described as "not entirely useless," all are part of the Exchange experience, too.

Still, Exchange is here to stay and if 2010 is the direction we're going, then the good far outweighs the bad. Two steps forward and one step back still adds up to one step forward!



NETWORKING

VENDOR **Cisco** :: PRODUCT **ASR router**

WITH ENTERPRISES LOOKING to consolidate data centers and devices, Cisco's ASR1000 series router offers a compelling message: Do more with less.

In our exclusive test, the ASR not only moved traffic at 20Gbps but also did so while running QoS, security and monitoring functions on 120 million flows from hundreds of concurrent routing sessions.

The ASR also proved a capable performer when handling multicast and IPSec VPN traffic. And with a 40-core processor, the ASR has enough headroom to run firewalls, load balancers and other services without requiring additional hardware.

That's not to say the ASR isn't still a work in progress. Its data-plane capacity still needs to grow, and Cisco hasn't yet rolled out all the services that ASRs eventually will support. But this is a strong effort, well worth considering for the many enterprises looking to replace tiers of aging Cisco 7200 routers with a single, more powerful system.

RUNNER UP

VENDOR **3Com** :: PRODUCT **H3C switch**

3COM SAYS it has an alternative for network managers considering high-end switches from Cisco and others. And our exclusive test of this core switch backs up 3Com's claim. The chassis-based, 288-port device delivered line-rate throughput in all performance tests, supported more Open Shortest Path First routing sessions than we've ever set up and consumed remarkably little power all the while.

While the device doesn't have all the features of some competitors (for example, the switch doesn't yet support hitless upgrades), its



RUNNER UP

VENDOR **Zimbra** :: PRODUCT **Collaboration Suite**

WANT THE BENEFITS of Exchange, without actually running Exchange? We tested six alternatives, most of which closed in pretty well on the essence of what a collaboration server should be. We preferred Zimbra for its broad cross-platform support and powerful mail server. Sure, inside it's a complicated maze of interlocking scripts held together by strings of commands that only a few select people truly understand. But when it works, which it did very well in our testing, Zimbra does what you want on the platform of your choice, and the price is slightly less than Microsoft Exchange. Plus, VMware seems to believe in it, since it announced it's buying Zimbra from Yahoo.



CISCO'S FAMILY OF ASR ROUTERS



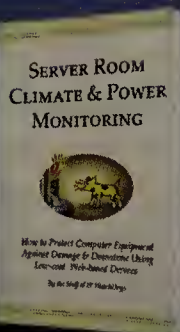
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ARCserve Backup

CA's ARCserve is fast, reliable, easy to use and highly platform-neutral. It's become our "go-to tool" in the lab when we need to quickly recover from server problems, glitches, application problems and – we admit it – the occasional thumb-fingered user error.

CA's 2009 release of ARCserve Version 12.5 has a data deduplication feature that saves us tons of time and effort. Using ARCserve's data deduplication, our on-site server-based grandfather/father/son backup scheme requires fewer servers and yet moves data quite rapidly to where we needed it — a godsend when we're faced with deadlines.

ARCserve gives us control over our data at a rather fine level of granularity. It scales well, is simple to install and configure, is feature-rich and works well on all the platforms in the lab. We especially appreciate how well ARCserve works in the VMware, Microsoft and Citrix virtualized computing environments. ARCserve has proved to be one of the most robust and reliable products in the lab.



Logan HARBAUGH

Synology DS509+

My favorite product of 2009 was the Synology DS509+, a five-bay stand-alone network-attached storage (NAS)/storage-area network storage system that is tiny, nearly noiseless, and a great value. It is available in several configurations, offers capacities up to 8TB (in RAID5), and a great feature set, considering the \$2,500 price tag. It provides seamless NAS functionality and unlike most small NAS boxes, also includes iSCSI support. It doesn't support replication or thin provisioning, but those features could be added with additional software.

The DS509+ comes with a huge list of SMB features, including backup software to allow PCs and laptops to back up to it, an integrated Web server, database server and a media server that can stream sound to PCs, Macs or even iTunes and iPhone clients. It even includes an external sound port.

Setting up the DS509+ is very easy, with wizard-based setup for all major functions and a clean, clear interface. Even iSCSI is easy to set up and use. The DS509+ could easily replace a standard Windows or Linux server in small offices.



Craig MATHIAS

Cisco Spectrum Expert

I consider a Wi-Fi spectrum analyzer to be an essential tool for every consultant and every enterprise installation of any size. A spectrum analyzer isn't a traditional

datascope or packet analyzer — rather, it's a way of seeing energy in a radio channel in an effort to verify configuration and to identify sources of interference. My choice has always been Cisco's Spectrum

Expert, which is also available in a similar form from Fluke Networks, under their AirMagnet brand. This product is comprehensive and yet very easy to use, even for non-engineers. The interface is intuitive, and the range of function includes the ability to customize the display to exactly what is needed in a given situation.

I use Spectrum Expert for benchmarking projects to make sure the playing field is level, for debugging suspected performance or coverage issues, and to do post-installation site surveys. I wouldn't be without it.



LANs in my house. I've used hundreds of wireless and mobile products, spoken and written widely on the subject, and generally been a cheerleader for everything wireless — but I have a deep, dark, secret: I have terrible wireless coverage at my house.

I'm only a kilometer or so from the Mass Pike — the big east/west toll road that runs the length of the state. You'd think cellular would be just fine here. And yet service is marginal with all of the four major carriers — a bar or two at best. The second floor is a great place to make a call, but the office is in the basement. Dropped calls are common.

Then I discovered zBoost Cell Phone Signal Extender from Wi-Ex. This is a low-cost repeater — perfectly legal, mind you — that adds a couple of bars to the signals of all of the carriers. For best results, you'll need to do a little installing, ideally mounting the included cable-attached antenna some distance from the base unit, which is about the size of a Wi-Fi access point. But no configuration beyond that is required — switch it on and enter cell phone coverage nirvana.



zBoost Cell Phone Signal Extender from Wi-Ex

I've been working in wireless for almost 19 years. I have five — or is it six? — wireless

Belkin N+ wireless router

Another favorite of mine is the Belkin N+ wireless router and N+ PC card and USB adapters. The system is not only fast — the router provides a USB port to allow an attached hard drive, turning it into a NAS system, and also includes a modem port, allowing for failover access if the LAN connection goes down. It provides four gigabit Ethernet ports, a stateful packet inspection firewall and excellent wireless speed.

The setup process is easy for both the router and the USB and PC card adapters, with a wizard for initial setup and straightforward Web interface for changing settings. With support for the latest security standards, setting up a secure wireless network is straightforward.

I observed speeds of 200M to 270Mbps throughput inside the office. There's a cute speedometer (a row of LEDs) on the router that tracks Internet download speeds. With great ease of use and a nice feature set, the N+ wireless system from Belkin is an easy way to up your wireless speeds and range.

Bloggers weigh in on their favorite products of 2009

James E. GASKIN

Mindjet Catalyst

The modern distributed workforce makes it difficult to recapture the “aha!” moments that used to happen around the water cooler. Mindjet’s Catalyst can bring those impromptu idea-generating meetings back with a combination of mindmapping software, collaboration tools to accommodate group interaction, and audio videoconferencing through their own meeting interface.

MindManager Web, announced in November 2008, turned visual brainstorming tools into a combination wiki, messaging and document manager. Catalyst, released this past October, moved the water cooler into the digital age. Mindmapping tools linked with an online whiteboard lets users look at ideas and tasks in new ways. Web conferencing puts a distributed workforce around that whiteboard at the same time. Together, you get all the value of casual water cooler inspiration and whiteboard brainstorming without the hassle of travel.



Epson WorkForce 610 All-In-One-Printer

This Multi-Function Printer (MFP) performs well, but also illustrates the tremendous value modern MFPs provide to small businesses today. Epson’s WorkForce 610 is an ink-jet-based, all-in-one printer that includes an automatic document feeder that moves it from good to very good. Copy or scan multiple pages with the touch of one button, then capture and file those scans with Epson software. Networking support includes wired Ethernet and wireless. Have a memory card? Plug it in and print. Need a fax? Got it.

Print speeds are fast for a workgroup ink-jet and color output, especially on quality paper, looks as good as that from any competing printer. PCs and Macs are supported.

At a street price south of \$150, the WorkForce 610 provides printing, copying and scanning with an automatic feed at a new

low price. It would be nice if Epson supported Linux clients as well as competing HP models do, but the price and performance will make this a great choice for many small businesses and workgroups.

PBworks Project Management and legal editions

Wikis aren’t new, and neither is PBworks (PBwiki early on). But PBworks seems determined to organize collaboration around multiple verticals, and turn text into a powerful organizational tool.

By including customized templates for project managers and then lawyers (Business Edition and Legal Edition), PBworks moved the wiki from cute and friendly into mission critical. Although the basic PBworks remains free, these advanced versions charge per project manager or lawyer, but let team members access information without charge. Managing a new product catalog?

People think in words, not database records. PBworks organizes words, free-form text, documents and Web links into an easy-to-use, searchable repository. Who needs SQL queries when you have search across all your notes and documents? Nobody, when using PBworks.

Gaskin writes books, articles and jokes about technology and real life from his home office in the Dallas area. He can be reached at readers@gaskin.com.

Jamey HEARY

Windows Touch for Windows 7

Microsoft released Windows 7 with multi-touch capabilities embedded into the operating system. The touch features built into Windows 7 heavily borrow from the Microsoft Surface technology shown to the world a couple of years ago. It has taken several months for PC vendors to build hardware to support the touch capabilities of the operating system. The extensive line-up of touch enabled devices shown at this year’s CES conference ensure that it won’t be long before we see all sorts of new touch-enabled devices using Windows 7 touch features.



The power of fully integrated Windows Touch in Windows 7 makes your PC experience more intimate and productive. Windows 7 includes the following integrated touch features:

- Touch Gestures (editing flicks, scroll, tap, back, forward, drag, right click) including multi-touch gestures such as rotate and zoom. Gestures work with any application, not just touch-enabled ones.
- Updated taskbar layout that is optimized for both touch and non-touch operation.
- Touch keyboard with keys that light up when pressed and you can use multi-touch to hold down more than one key at a time like a real keyboard. You double tap the screen’s edge for it to slide to center screen.

iPhone 3GS

Once again Apple kicks it up a notch with its release of the latest iPhone model, the 3GS. I wouldn’t say the 3GS added any innovative features but it sure did add many highly useful ones, such as voice control, video camera and MMS. The iPhone 3GS also added in security features that were holding back the mass adoption by enterprises, such as disk encryption, remote wipe and encrypted iPhone backups. Add to that the 2x performance gains, internal compass, 3MP camera and more flash storage and you get the best smartphone on the planet.

Heary is a security consulting systems engineer with Cisco, though the opinions expressed here are his own. He is a member of Network World’s Cisco Subnet blog community. He can be reached at jameyheary@yahoo.com.

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Periodical postage paid at Framingham, Mass., and additional mailing offices. Posted under Canadian International Publication agreement #PM40063731. Network World (ISSN 0887-7661) is published twice monthly by Network World, Inc., 492 Old Connecticut Path, Framingham, MA 01701-9002. **Network World** is distributed free of charge in the U.S. to qualified management or professionals. To apply for a free subscription, go to www.subscribeNW.com or write Network World at the address below. No subscriptions accepted without complete identification of subscriber's name, job function, company or organization. Based on the information supplied, the publisher reserves the right to reject non-qualified requests. Subscriptions: 1-877-701-2228. Nonqualified subscribers: \$5.00 a copy; U.S.—\$129 a year; Canada—\$160.50 (including 7% GST, GST#126659952); Central & South America—\$150 a year (surface mail); all other countries—\$300 a year (airmail service). Four weeks notice is required for change of address. Allow six weeks for new subscription service to begin. Please include mailing label from front cover of the publication. Network World can be purchased on 35mm microfilm through University Microfilm Int., Periodical Entry Dept., 300 Zebb Road, Ann Arbor, Mich. 48106. **PHOTOCOPYRIGHTS:** Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by Network World, Inc. for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of \$3.00 per copy of the article, plus 50 cents per page is paid to Copyright Clearance Center, 27 Congress Street, Salem, Mass. 01970. **POSTMASTER:** Send Change of Address to Network World, P.O. Box 3090, Northbrook, IL 60065. Canadian Postmaster: Please return undeliverable copy to PO Box 1632, Windsor, Ontario N9A7C9.

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BACKSPIN | BY MARK GIBBS

Spying defies belief

WHAT IS it about large organizations that make it easy for them to lose their collective minds? It seems that the news is full of cases of this kind of lunacy that defy belief.

By way of an example, I just read about how Lower Merion School District in Pennsylvania, through state and federal grants, was able to supply 1,800 high school students in the district with laptops. Fantastic! That's the kind of initiative that more schools and school districts should be undertaking.

But it turns out that somewhere on the administrative side of the district someone had what they thought was a good idea. This good idea consisted of adding software to the laptops that would let school and administrative staff spy on students using the laptops' Web cams. This meant that any time the laptops were running, whether the students were at school or at home, someone could see, hear and record what the student was doing.

First, you have to wonder how the district's administrators came to conceive of this program. This district is not in some hick, back water where no one would understand the issue; its two high schools are in wealthy neighborhoods with the kind of families that have the knowledge and resources to take people to court for things like violation of privacy. So even the most naïve administrative wonk should have thought twice about this program, but obviously that didn't happen.

Next, you have to marvel at the people who were tasked with making this program work. Someone in authority had to have said to someone in IT, "We want to spy on students through their new laptops ... how are we going to do this?"

At this point, wouldn't you have thought the IT person might have said, "Guys, do you understand what you're asking? Do you understand that it is illegal?" That's what you'd think but, again, obviously that didn't happen.

It's possible the IT person was out of the loop on this one, and the whole thing was on a "need to know" basis involving only a few staff, but I doubt it. What makes me doubt it is the program came to light when an assistant principal confronted a student with an accusation of "improper behavior" and produced a Webcam image in evidence. What the "improper behavior" was hasn't been revealed, but the big brother overtones are obvious as is the violation of privacy involved.

In the annals of dumb organizational moves, this has to rank up there with Apple last year approving the iPhone application "Baby Shaker" for the App Store while turning down scores of other apps for undisclosed reasons. Or how about one of my favorites, All Nippon Airways' "poo before you go" program, an effort to get passengers to relieve themselves prior to departure to lighten the load and save fuel.

These organizations should have known better, and Lower Merion School District should have too.

The result of this idiocy? A class-action suit on the behalf of students against the school district and its board of directors. Maybe that will help shed some light on why no one considered the implications of the spying program and if they did, why they didn't speak up. It defies belief. ■

Gibbs can hardly believe it in Ventura, Calif. Are you as amazed? Tell backspin@gibbs.com.



NETBUZZ | BY PAUL MCNAMARA

New one-stop shop for network needs?

MAYBE SOMEONE at Staples believes the Easy Button is real technology. How else does one explain the office supply chain's announcement last week that it is branching out to become a "one-stop" provider of data center and network services for corporate customers of all sizes.

From the company's press release: "Staples Technology Solutions offers business customers — from small- and medium-sized businesses (SMB) to Fortune 1000 corporations — access to a full range of offerings from data center solutions and printer fleet management services to network services and everyday desktop technology products."

I mean it's almost as if a search engine company decided to become a broadband services provider.

To be fair, however, Staples did not just wake up one morning and decide to woo IT and network professionals; this gambit has been in the works for some time. The company bought SMB services specialist Thrive Networks in 2006, and the fruits of that acquisition now powers a 300-person operation in Florida that provides a wide variety of data center and production printing services. And, yes, Staples has long sold a wide variety of electronics — including computers and peripherals — both in its stores and online.

Nevertheless, it's not unfair to suggest that the company's marketing department may have its work cut out, witness this comment on a *Boston Globe* story last week: "You walk into a Staples and you got people who don't know the answers to the most simple questions. Now you are (turning to) Staples type of people to do critical business tasks! WOW. Not in my enterprise." How about yours?

EFF publishes 'Digital Books and Your Rights' ... (sigh)

As signs of the times go, this one is somewhat sad. Last week the Electronic Frontier Foundation saw fit to publish "Digital Books and Your Rights," a guide for those who own or want to purchase an e-reader.

Days prior, I had taken my kids to Barnes & Noble, left with a handful of children's titles and never once stopped to think about the current or future legal implications of that purchase.

Of course, there's no chance Barnes & Noble will come to my house and snatch the books back, no chance that the books will one day be rendered inoperable and no chance some future legal edict will force the publishers to redact disputed passages.

But such is not the case with e-books, as was learned through the great Amazon "1984" fiasco. From EFF's press release: "Over the last few months, the universe of digital books has expanded dramatically, with products like Amazon's Kindle, Google Books, Internet Archive's Text Archive, Barnes and Noble's Nook, and Apple's upcoming iPad poised to revolutionize reading. But while this digital books revolution could make books more accessible than ever before, there are lingering questions about the future of reader privacy, consumers' rights, and potential censorship."

Among the questions EFF poses: Does the service limit tracking of you and what you read? When you pay for a book, do you own it outright or merely license it? And, is the service censorship resistant?

You can read EFF's complete rundown of your digital-book rights at tinyurl.com/yl67qrd. Or you can take your kids to a bookstore. ■

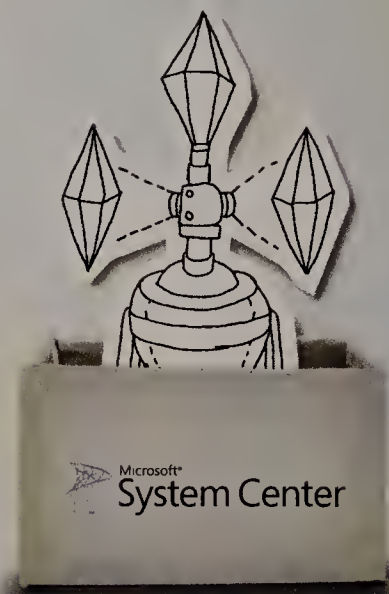
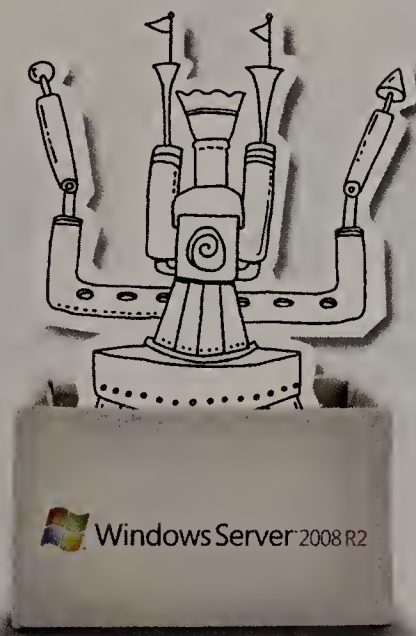
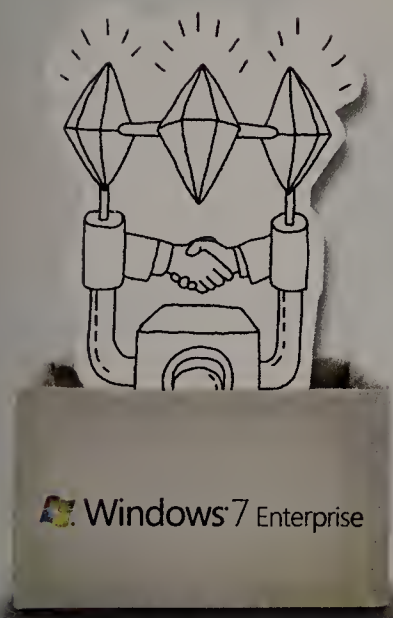
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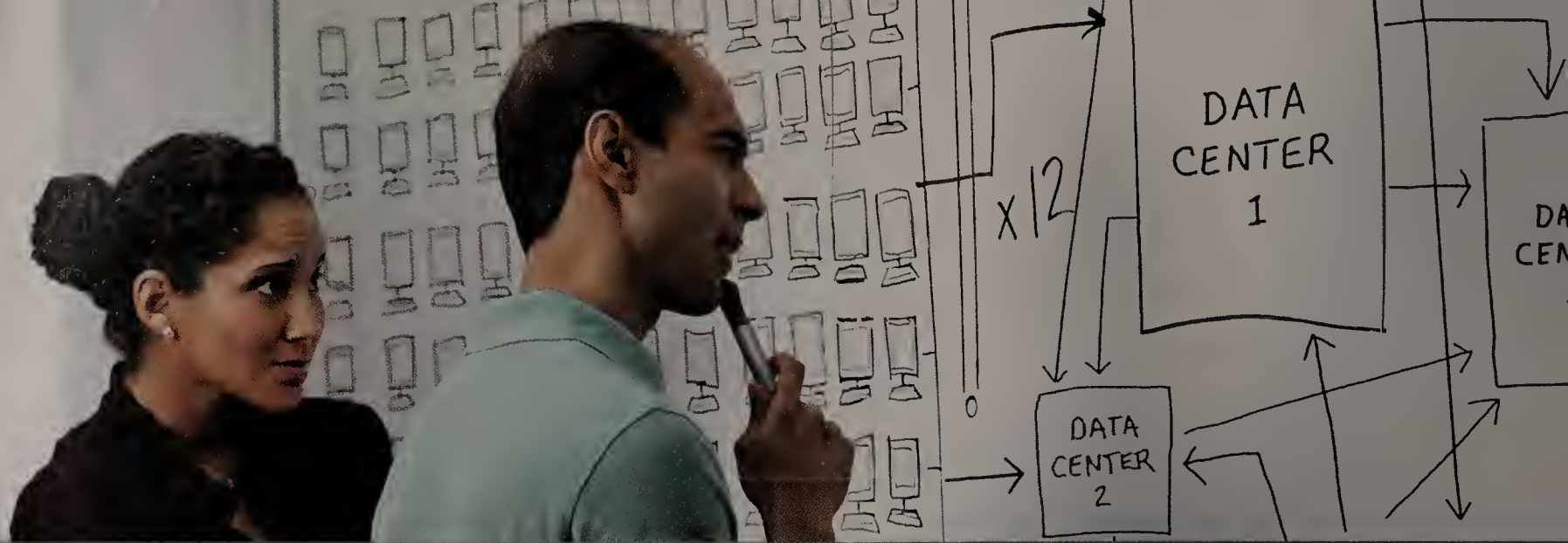
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